BOROUGH OF LEIGH.

EDUCATION COMMITTEE.

ANNUAL REPORT

OF THE

SCHOOL MEDICAL OFFICER

FOR THE

Year ended 31st December, 1924.

LEIGH:
Collins & Darwell Ltd., Printers, Hope Street.

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BOROUGH OF LEIGH, 1924.

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MEDICAL STAFF.

Medical Officer of Health and School Medical Officer :

J. CLAY BECKITT, M.R.C.S., L.R.C.P., D.P.H.

Ophthalmic Surgeons :

J. SACKVILLE MARTIN, M.D.

G. H. SHAW, M.B., C.M.

Operative Surgeon :

F. PEARCE STURM, Ch.M.

Anæsthist :

J. JONES, M.D.

Aural Surgeon :

F. PEARCE STURM, Ch.M.

Dental Surgeon :

E. ENTWISLE, L.D.S. Eng.

Health Nurses :

Miss BELYEA

Miss SMITH

Miss BOYDELL

Miss GOULDEN

Clerk :

Miss PASS

TOWN HALL,
LEIGH.

To the Chairman and Members of the
Education Committee of the Borough of Leigh.

Mr. Chairman, Ladies and Gentlemen,

I have the honour to present to you my Annual Report on the Medical Inspection and Treatment of School Children in the Public Elementary Schools in the Borough of Legh for the year ending 31st December, 1924.

The following tables show the particulars of the Schools, accommodation and attendance :—

	Mixed.	Infants.	Total.
Average on Register	4909	2060	6969
Average Attendance	4563	1789	6352
Percentage Attendance	91·5	86·7	89·1

	Schools	Department.	Accommodation.
Provided	1	3	940
Non-Provided	17	33	8121
	18	36	9061

There was no half-timers in the Schools.

Treatment continues to receive considerable attention, and quite a number of defects are now dealt with. Amongst others, enlarged tonsils and adenoids are operated on, defects of vision are corrected and spectacles provided, diseases of the ear and nose, dental and minor ailments, including skin diseases, blepharitis, ringworn and injuries, etc.

The public continues to show its desire for School Treatment Clinics, and instead of the passive opposition exhibited a few years ago, the requests for early treatment sometimes become disconcerting. Real opposition is practically never met with now.

The Teachers also, by their constant reference of children to the Clinics with request for treatment and advice, show their confidence in the movement.

By the use of Clinic Attendance Cards the minimum absence from school in attending the various Clinics is secured and credit for attendance is safeguarded as much as possible.

The object aimed at is to ensure that every child shall be capable of receiving benefit from the education given in the ordinary Elementary School, or steps be taken to ensure either the child shall be made capable or placed in surroundings suitable to its mental or physical capacity.

There are a number of children still in the ordinary classes who would greatly benefit by special methods of instruction. The system of having graded classes for more or less defective or backward children in the larger schools is worthy of the careful consideration of the Committee.

There are also a number of children whose physical and mental health would be greatly benefited by attendance at an open-air school, in fact many have to be excluded for weeks at a time from the ordinary school who would make regular attendance at an open-air school, with improvement to their health.

The practice has long passed the stage of experiment, and the permanent benefit to health and educational progress of the children who attend such schools has proved its real value.

It is the experience of districts provided with open-air schools that children too delicate for an ordinary school stand the wide open doors and outside air temperature not only without prejudice, but with great improvement to physical and mental health. It is also a significant fact that incidence of infectious diseases such as Measles, Influenza, Whooping Cough, etc., is less amongst children attending the open-air schools than those attending the ordinary schools, and every year that a child escapes the common infective diseases of children, the less the mortality and the risk of crippling. These schools, thus, are of positive value in the prevention of infectious disease.

An alternative to local open-air schools in the form of a School Camp at Prestatyn for the accommodation of forty children has been submitted to the Board of Education and has received the Board's conditional approval.

There can be little doubt as to the benefit that will be derived by the pupils during there attendance at the School Camp, partly on account of the healthy surroundings and sea air, but more especially by their almost constant exposure to sun, light and open air.

Much the same results could be and are obtained by having one side of the class-room of an ordinary school open. The objection of exposure of the pupils to cold is purely mythical, for if delicate, anæmic and convalescent children can tolerate and recover in an open-air school surely an energetic child in good health can stand the exposure. Conditions of surroundings which will help to recover health must assist in maintaining health.

Closely associated with the question of fresh air during school hours is that of playing fields for school children after school. The necessity of such provision becomes more acute every year. Vacant plots of land are being taken up for building purposes and thus cease to be available for the purpose, unsuitable as their condition usually is, the increase of motor traffic on the street increases the danger to children playing there, and the injustice of making provision for adult enjoyment and leaving the children, who have no voice in the matter and whose natural instinct compels them to run about somewhere, to expose themselves to danger in the street or play in a pokey back-yard.

There are still a considerable number of vacant building plots in the various parts of the town which could be made reasonably suitable at small cost and which would prove a boon to parents, children and the public.

I commend the question to the serious consideration of the Committee.

The prevalence of vermin in the children's heads, especially of girls, continues to be deplorable. It causes a serious loss of attendance and is often the commencement of more serious trouble. The introduction of septic matter into the scalp, through scratching, causes enlargement of the glands of the neck, and the glands thus weakened are naturally prone to tuberclar infection.

Very serious and persistent attention has been devoted to the matter, and a large amount of the Nurses' time is taken up in detecting and treating the condition.

The girls' heads are inspected and re-inspected on the following occasions :—

(a) Routine Medical Inspection.
(b) Nurses' Routine Inspections for Cleanliness.
(c) Frequent surprise visits for ascertaining Uncleanliness.
(d) Every visit to the School Inspection Clinic.

The results of such examinations of heads and bodies are as follows :—

Total Inspections for Cleanliness ...	15197
Number of Children found Unclean ...	1233
Percentage	8·1

The efforts have certainly been amply rewarded, but the condition will never be eradicated until a healthier public opinion prevails in the matter. People do not realise that the presence of nits is impossible without the living lice whose eggs they are, or that their presence is not an indication of robust health.

In dealing with them an attempt is made to impress on the mothers the fact that where children are congregated together infection may take place in spite of the utmost cleanliness.

The co-operation of the Teachers, in particular the Head Teachers of the infant departments, is solicited in an endeavour to insist as far as possible on the mother, when she enters the child on the school register, promising to keep the girl's hair short or tightly plaited when in school, during the whole of her school life. If one or the other of these methods and better cloak-room accommodation were adopted, I consider infection through the school environment would be almost nil.

Infection due to home conditions would still have to be dealt with, but as the source could be more easily ascertained, and being more limited, concentrated pressure could be applied with better prospect of success. I have received constant and effectual assistance from the local Inspector of the N.S.P.C.C. in dealing with this class of habitual offender, who are usually careless and slatternly mothers or widowers who have failed to make proper arrangements for the care of the house and the children.

A note is sent to the parents of all children found to have nits or vermin, or to be in a foul or filthy condition, calling their attention to the child's condition and giving instructions for cleansing. They are re-examined by the School Medical Officer in a few days at the Inspection Clinic, and if satisfactory progress has not been made, a notice under Section 87 of the Education Act, 1921, is sent. If the cleansing has not been satisfactorily accomplished in about four days, the child is removed from school by the Nurse and effectually dealt with.

Probably when parents realise that adverse reports by S.M.O. to the Juvenile Employment Exchange are likely to be issued for this condition, they will make a serious attempt to keep the heads clean.

A close co-ordination between the School Medical Service and the various portals of Juvenile Employment is desirable. It would secure a higher standard of efficiency of the candidates for employment and a much diminished incidence of vermin in girls' heads if the S.M.O. was entrusted with certifying of children for employment instead of the Factory Certifying Surgeon.

The loss of wages appeals much more forcibly than any sense of moral responsibility or decency.

I have received a hearty co-operation from the Teachers, who have rendered great assistance in securing early treatment and proper care for those requiring it, and refering doubtful cases for advice to the Clinics. I am satisfied they are anxious to support the objects of the Medical Service. I wish to tender them my sincere thanks.

My gratitude is also due to the N.S.P.C.C. and its local representative, Inspector Farrel, for his energetic, ready and most valuable assistance. My thanks are heartily tendered to the Health Nurses for their untiring devotion to duty and keeness to improve the service.

2.—CO-ORDINATION WITH OTHER HEALTH SERVICES.

The School Medical Officer is also Medical Officer of Health and has charge of the Child Welfare Organisation. Co-ordination of supervision is thus secured.

The respective Committees have approved of the principle of amalgamating the Staffs of the School Medical and Child Welfare Departments. By this amalgamation an end has been put to a purely arbitrary division of work which could not be defended on the grounds of economy or efficiency. The child is now under the supervision of one set of officials from birth onwards, and even ante-natal conditions are the concern of the same official.

There is no Nursery School in the Borough.

The care and treatment of debilitated children below school age are secured through the Maternity and Child Welfare Scheme by :—

Private Medical Practitioners.
The Local Hospitals.
Special Hospitals.

The Health Nurses visit the homes, advise the parents and endeavour to get every case properly treated which requires it.

3.—SCHOOL HYGIENE.

The School Medical Officer has inspected all the Schools, some of them two or three times, during the year. They are all more or less defective ; some to a serious extent, others less so.

The grounds of complaint most common perhaps are :—

Unpaved playgrounds.
Lack of facilities for washing and drinking.
Inadequate and improper cloak-room accommodation.

There is usually no arrangement for drying clothes, and the cloak-rooms are generally dark, cold and dirty.

Boiler fire cinders form the covering of most of the playgrounds. they are dangerous when first put on as large clinkers, and later, when broken up by tramping, become a bed of fine black dust in fine weather, and a sticky morass when wet. It is impossible to keep Schools reasonably clean when so much black dirt is carried into the building on the children's boots and clogs.

It all becomes black dust, and is stirred up time after time by the movement of scholars.

It is quite exceptional to find reasonable facilities for the drinking of water and washing. All the Schools have town's water laid on.

Many of the water closets are flushed by "tipplers." They are very unsatisfactory, and are constantly getting out of order. There is room for improvement in the cleanliness also. Improper use is very often the reason, and causes some unnecessary irritation to the Caretakers.

The ventilation of the school-rooms is fairly good. Natural means is usually relied on, and where the Teachers take an intelligent interest in the matter quite satisfactory results can be got. There is not sufficient attention given, however, to the flushing of the rooms during the short play intervals.

The lighting of the class-rooms, with very few exceptions, is satisfactory. Although the window area in many cases is below what is desirable, the absence of over-shadowing trees or buildings ensures a fair amount of light entering the room.

The desks are generally so placed as to secure the best advantage, and in accordance with established principles, but more than three-quarters of the desks used in the Schools are of the continuous type, without back-rests, and with the seat placed too far back from the desk. These relative positions entail considerable bending forward of the child's body, and more or less resting on the desk. It is an unnatural position, conducing to restriction of chest movement and a stooping posture.

Most of the Schools lack reasonable accommodation for the Teachers ; they have no retiring room, and usually no separate sanitary arrangements.

I am pleased to note there was not the same tendency to crowd a class into a small compass, instead of spreading them out to cover the largest area available. Catarrhal, and particularly respiratory diseases, are much more likely to be disseminated amongst the children by crowding, and last year I made a point of calling the attention of the Teachers to the matter. The cleansing of the Schools is very unsatisfactory. I consider they ought to be as clean as the rooms at home, but I am sure any housewife of average self-respect would be ashamed to see her floors and furniture in the state usually found in our Schools.

The Managers of some of our Schools have schemes in hand for alteration and improvement of the premises. In the meantime a special effort is being made to secure satisfactory cloak-room accommodation, improvement in seating, and a cleaner condition of the buildings.

4.—MEDICAL INSPECTION.

A.—Groups Inspected.

All the children present in School on the occasions were inspected belonging to the following age groups :—

(a) Entrants—those admitted to School during the 12 months preceding March 31st, 1924.

(b) Intermediates—those between 8 and 9 years of age.

(c) All who have reached 12 years of age, unless they have been examined since reaching that age.

(d) Special cases referred by the Teachers, etc.

(e) Applicants for admission to Leigh Holiday Camp at Prestatyn.

B.—The Board's Schedule of Medical Inspection has been followed.

C.—Ascertainment of Cripples.

Infants suffering from congenital crippling conditions and those showing evidence of crippling diseases are kept under observation, and such steps taken to secure treatment as are necessary by the Health Nurses.

Treatment—surgical, mechanical and educational—is secured either through—

(a) The Private Practitioner.
(b) General Hospital.
(c) Special Hospital.

A list for permanent record is being compiled of all known and ascertained cripples, of whatever age or cause.

The absence of arrangements for massage and corrective mechanical treatment is to be deplored, and forms a serious breach in an otherwise fairly complete treatment service.

Children return home from hospital after an operation requiring frequent and prolonged massage, for which no provision is made. A highly successful operation, often at the expense of the Committee, may have been carried through, but the cure cannot be completed without the assistance of the masseur, and thus money is spent without securing the benefit available.

It is hoped this omission will soon be rectified by a scheme for the organisation of an Orthopædic Clinic which has received the conditional approval of the Board of Education.

D.—Disturbance of School Arrangements by Routine Insection.

Very few Schools have a vacant room in which the inspection can take place. Consequently it entails a re-arrangement of the classes, making provision for at least one class in a room already occupied. In many cases the disturbance is even greater on account of the inspection room being entered from another class-room and all the children about to be inspected having to pass through this room.

The Head Teacher invariably places his services at my disposal and often the Assistant Teacher is present during the inspection of the members of his or her class. I encourage their presence, and find their observations of great value. They receive advice first hand, and undoubtedly take a greater interest in the defective condition pointed out to them. They also act as an ideal link between the doctor and the parent in the absence of the latter, and are a potent factor in securing treatmeut by the more indifferent parent.

5.—FINDINGS OF MEDICAL INSPECTIONS.

Review of the facts disclosed by Medical Inspection :—

A.—Uncleanliness.

Frequent routine inspections for cleanliness are carried out by the Health Nurses.

Printed instructions for cleansing are given to the scholar to convey to the parent.

If necessary the child is excluded. The case is followed up at once if excluded, or if on a subsequent visit to the School the cleansing has not been satisfactorily carried out. The child also attends the Inspection Clinic weekly.

Uncleanliness is also looked for during the routine inspection and at the Inspection Clinics. The same procedure is followed with regard to treatment.

The School Medical Staff is much encouraged by the increasing and consistent interest in this matter shown by the Teachers, and their determination that the children shall enjoy the pleasure of self-respect of a clean body.

The eradication of nits in girls' hair entails an enormous amount of time and attention, and is made more arduous by the indifference of the mothers; in fact some parents seem still to look upon the presence of lice and nits as evidence of robust health.

Plaiting and bobbing the hair seem to some extent to diminish the dissemination, but these methods of dressing the hair are not at all popular, and even strongly resented by many parents. Many of the Teachers make an effort to insist on the point, but feel they lack power to enforce it.

B.—Minor Ailments.

These consist of Impetigo, Eczema, Ringworm, Blepharitis, Injuries, Enlarged Glands, Anæmia, etc. They are treated at the Minor Ailment Treatment Clinic by the Nurse under the supervision of the School Medical Officer, if not otherwise attended to after notice has been sent to the parent.

Excluding cases of uncleanliness, 863 were found during the course of inspection. Particulars of treatment are contained in Table IV. of the Appendix, and the following table shows the nature and respective numbers of the minor defects found :—

Minor Defects.	No. Requiring Treatment.	No. for Observation.	Total.
Enlarged Glands (Non-T.B.)	1	7	8
Defective Speech	7	—	7
Heart and Circulation (including Anæmia)	179	—	179
Skin Diseases	82	—	82
External Eye Disease	65	—	65
Lung Disease	59	3	62
Nervous Diseases	7	—	7
Other Minor Defects	296	26	322

C.—Tonsils and Adenoids (one or both).

The table below shows the number of children found at Medical Inspections to be suffering from these defects, with the relative frequency of the respective conditions :—

Enlarged Tonsils.	Adenoids.	Enlarged Tonsils and Adenoids.	Other Conditions.
305	45	35	15

Only those were referred for operative treatment who showed evidence of resulting interference with normal breathing, or the tonsils were so large as to manifestly warrant removal.

D.—Tuberculosis.

Before the diagnosis is definitely adopted every case, doubtful or otherwise, is referred to the Tuberculosis Officer for his diagnosis, and his opinion as to the infectivity of the condition in order to arrive at a decision as to school attendance. The following was the number of children so diagnosed :—

(a) Pulmonary	35
(b) Non-Pulmonary	8

E.—Skin Diseases.

This table shows the number of children found suffering from the various skin diseases specified :—

Impetigo.	Ringworm.	Other Diseases.	Total.
56 ...	25 ...	8 ...	89

F.—External Eye Diseases.

Blepharitis was by far the most common disease found during inspection.

The parents are very indifferent with regard to treatment and constant and repeated urgings are necessary to get anything done. Treatment at the Clinic, I am satisfied, is the only satisfactory way of securing amelioration. Every facility is offered.

The following table shows the frequency of the several external eye diseases :—

Blepharitis.	Conjunctivitis.	Other. Diseases.	Total.
42 ...	2 ...	21 ...	65

G.—Vision.

Sight tests are not applied to entrants at the Routine Medical Inspection. Snellin's type is used for all others.

Children revealing an acuteness less than 6/9 in either eye are referred to the Ophthalmic Surgeons for test and prescription, if the correction has not been efficiently secured by the parent after notice of the defect has been sent.

The following was the number found with less than 6/6, and the subjects of squint :—

Defective Vision	413
Squint	19

H.—Ear Disease and Hearing.

The following table shows the number of children suffering from suppurative otitis media alone, deafness without present otitis and those in which both are combined :—

Defective Hearing.	Otitis with Defective Hearing.	Other Diseases.	Total.
13 ...	4 ...	5 ...	22

I.—Dental Defects.

This table shows the number of children with unsound or otherwise defective teeth as ascertained by the School Medical Officer.

Details of the result of inspection by the Dentist are given in Section 8 :—

Number inspected	3290
Number found defective	1136

J.—Crippling Defects.

The following table shows the cause of the crippling conditions as far as can be ascertained :—

	Tuberculosis.	Paralysis.	Rickets.	Heart Disease.	Congenital.	Total.
Boys ...	8 ...	19 ...	4 ...	4 ...	— ...	35
Girls ...	6 ...	21 ...	5 ...	— ...	3 ...	35
Total ...	14 ...	40 ...	9 ...	4 .	3 ...	70

6.—PREVENTION OF THE SPREAD OF INFECTIOUS DISEASE.

The success of any steps taken to prevent the spread of infectious diseases depends on the early and reliable knowledge of its presence.

This information is obtained by :—

(a) Statutory notification by Medical Practitioners and others to the Medical Officer of Health, who is also School Medical Officer.

(b) Weekly Returns made by the Head Teachers of all absences and the ascertained cause to the School Attendance Officers and which are immediately submitted to the School Medical Service.

(c) The Health Nurses.

(d) The School Attendance Officers.

(e) Daily return of fresh cases reported to be absent on account of infectious disease during its prevelance.

The first means is the only one which really satisfies the conditions laid down, as information received from parents is often quite unreliable.

Administrative action taken include—

(a) Isolation of patient.

(b) Nurses' visits to school affected, to detect and exclude suspicious cases.

(c) Exclusion of contacts.

(d) Secure home nursing and treatment.

(e) Disinfection of Schools.

(f) Improve general sanitary condition of the Schools.

(g) Insist on free ventilation of the Schools.

(h) Have the children evenly distributed over the maximum area available whilst in School.

(i) Allow no infectious case or contact to be re-admitted until certified by the School Medical Officer.

(j) Disinfection of the homes.

On account of the prevalence of Measles during April and May, ten infant departments were closed for an aggregate of 59 days.

I am not satisfied that the Closure had any material influence in checking the spread of the disease, but I think impressed the parents with its seriousness.

7.—FOLLOWING UP.

Following the Routine Medical Inspections a notice is sent to the Head Teachers specifying the defect or defects found in each child in the School, with a request that any serious alteration in the condition should be at once notified and that he should avail himself of every opportunity to impress upon the parents the advisability of securing the necessary treatment.

A notice is also sent to the parent stating the defect found and requesting them to seek medical advice.

The parents of those found defective are subsequently asked to bring the child to the Inspection Clinic, and if treatment has not been received or is shown not to be satisfactory, a strong appeal is made to secure it at once, and the services of the Treatment Clinics are offered.

If the parent does not attend or the interview is unsatisfactory, the Nurse visits the home and discusses the matter with the parent.

In the event of failure to secure it, where treatment is reasonably available, the influence of the School Attendance Officer or the Inspector of the National Society of Prevention of Cruelty to Children is solicited, according to circumstances.

Occasionally only is it necessary to seek the help of the Magistrates.

There are four Health Nurses engaged half time in School and Maternity and Child Welfare work respectively. Their School duties include attendance at :—

(a) Schools.—(1) At Medical Inspections.

(2) Systematic inspections for cleanliness.

(3) In connection with outbreaks of Infectious Disease.

(4) Examination of cases at request of teachers.

(b) Clinics. —(1) Inspection Clinics.

(2) Treatment of Minor Ailments.

(3) Ophthalmic Clinic.

(4) Operative Clinic.

(5) Aural Clinic.

(c) Homes. —(1) Following up defective children when treatment has not been secured.

(2) To instruct and demonstrate to parents home treatment, especially with regard to cleanliness.

(3) Ascertain cause of absence from Inspection or Treatment Clinics.

(4) Investigate home conditions in cases of bad clothing and footgear.

The School Attendance Officers render constant assistance in maintaining attendances at the Treatment and Inspection Clinics of those children excluded from School, and also in obtaining information for a variety of purposes.

8.—MEDICAL TREATMENT.

On the recognition of a defect the parent is informed of the fact by letter, or verbally if present, and is requested to consult the family doctor with a view to treatment. The Head Teacher is also notified of the defect.

A defect card is made out and the child subsequently called for re-examination.

If efficient treatment has not been obtained further pressure is put on the parent to take steps to secure it, or the services of the Special Clinics, in suitable cases, are offered. Minor Ailments, Dental, Aural, Ophthalmic and Operative Clinics have been held during the year.

Treatment of many minor conditions outside the Clinic is far from satisfactory. The length of time taken is out of all proportion to what is required under supervised energetic measures, and if exclusion from School is necessary the loss of education to the child, and grant to the Authority is serious.

Charging the parents for treatment has produced considerably more work.

Parents are not so ready to secure or agree to treatment being carried out at the Clinics since the introduction of charge. Delay and interruption in the regularity of some of the Clinics have resulted, in addition to considerable more time being occupied in interviews and investigations. Every consideration is given to the economic circumstances of the parents, and no child is debarred treatment on account of inability to pay even a small fee ; but delay in treatment and extra time has been spent in the preliminaries.

(a) Minor Ailments.

The following diseases are included under this heading :—External Eye Diseases, Skin Diseases, Otorrhœa, Wounds, etc.

Treatment is carried out by the Nurse under the direction of the S.M.O. and Aural Surgeon. The Clinic is held each morning at Stone House, and serves the whole area.

The children who attend are examined by the S.M.O. at the weekly Inspection Clinic and the Surgeon at the Aural Clinic.

To interfere as little as possible with the education of those children who are not excluded, a "Clinic Attendance Card" is used, the child conveying it to and from the School and Clinic, with the times of departure marked on it.

(b) Tonsils and Adenoids.

These defects continue to be prevalent.

All the cases are referred by the School Medical Officer after an attempt has been made to get treatment carried out by the parents. Only those are sent for operation who show evidence of the conditions producing physical disability.

The parent is interviewed and written consent for operation obtained. Printed directions for preparation and after-treatment of the child are given.

The child is brought to Stone House on the morning and put to bed for three hours before operation. They are retained till evening and examined by the Surgeon or Anæsthetist before before sent home in the ambulance. If necessary, the children could remain over night.

Special and detailed instructions for breathing excercises are given and parental supervision is insisted on. Inspection takes place eight days later, and the child is usually fit for school on the twelfth day.

The results have been most satisfactory and almost immediate. The facial expression, hearing and general health all participate in rapid improvement.

The Teachers also express their surprise at the increased attention and progress in School work as the result. I am convinced that from an educational point of view the work will return a good harvest, in addition to the economic advantage.

A special report on the work of the Clinic by the Surgeon and Anæsthetist will be found on pages 53 and 60.

(c) Tuberculosis.

All cases—Pulmonary and Non-Pulmonary—are referred to the Tuberculosis Officer through the parent, and appointments are made for the purpose. The influence of the School Medical Service is used to secure regular attention to the treatment, and some few cases are sent to Open-Air Schools if considered suitable and unlikely to secure admission to a sanatorium.

The services of the Tuberculosis Officer are used to decide the question of infectivity and school attendance.

All children of school age notified to the M.O.H. as suffering from Tuberculosis are reported to the S.M.O.

(d) Skin Diseases.

Treatment is received from—

(1) Minor Ailment Clinic.

(2) Private Practitioners.

(3) Manchester Skin Hospital.

By far the most satisfactory means is the Clinic. Cure is ensured much earlier, and school absence is avoided in suitable cases.

Ringworm and Impetigo are the most common infectious skin diseases, and produce the greatest interruptions in school attendance.

X-Ray treatment is not yet available for ringworm and there is no cleansing station fcr Scabies and other forms of uncleanliness.

The heads of children infected with lice are cleansed by the Nurses at Stone House after failure to comply with the notice served under Section 87 of the Education Act, 1921.

More ample provision of cloak-room accommodation in the Schools, with numbered hat and coat pegs allotted to the individual child, would, I am satisfied, diminish the spread of these infectious skin diseases and vermin. Strict supervision of the use of the cloak-room is also necessary.

(e) External Eye Diseases.

These conditions receive treatment through one or other of the following :—

(1) Private Practitioners.
(2) Manchester Eye Hospital.
(3) Minor Ailments Clinic.

The acute conditions generally procure efficient energetic treatment, but the diseases which occur usually in a more chronic form, such as Blepharitis, require such prolonged and persistent attention that apathy and carelessness often ensue before a cure is obtained. The result in these cases is distinctly unsatisfactory. Free treatment at the Clinic is the most promising method.

Cases of Squint are treated as defects of vision.

(f) Vision.

Cases of acuteness of vision of $\frac{6}{9}$ and less, and Squint, are referred to the Ophthalmic Surgeons for examination and prescription.

The fee, by contract, is paid by the Education Committee, and the spectacles are paid for by the parents, wholly or in part, according to their circumstances.

The routine followed at the Ophthalmic Clinic is as follows :—

After a preliminary examination of the eyes, a mydriatic, consisting of an oily solution of homatropine and cocaine, is placed inside the lower lid of all those to be tested. They then return to the waiting-room, while those tested under the mydriatic the previous week are examined by the same Surgeon subjectively, and the necessary spectacles prescribed and frames fitted.

The retinoscopic examination of the fresh cases is then proceeded with and the findings recorded. The children tested on previous occasions, and whose spectacles have been received, are also re-examined, wifh the spectacles on, to check the accuracy of the lenses and the fit of the frames.

On the occasion of the first and second attendance the child is given a "Clinic Attendance Card," returnable the same day of the following week.

Approximately six fresh cases and twelve re-examinations are dealt with at each session.

One hundred and thirty-seven children were examined at the Ophthalmic Clinic during the year.

Particulars are contained in the report of the Ophthalmic Clinic.

When glasses are procured, whether privately or through the Ophthalmic Clinic, the Teachers are notified and requested to insist on the wearing of the glasses according to instructions.

Arrangements are made for the repair of the frames by a local mechanic on special terms, at the expense of the parents.

Particulars of the nature of the error of vision will be found in the report of the Ophthalmic Surgeons.

(g) Ear Disease and Hearing.

Otorrhœa is treated by referring the cases to :—

(a) Private Medical Practitioners.
(b) Special Hospital.
(c) Aural Clinic.
(d) Minor Ailment Clinic.

The condition requires such long and persistent treatment that it is found the absence of control, associated with the two former channels, leads to slackness or early abandonment of attendance. Little assistance in the treatment can be obtained in the children's homes, and it is clear the Clinic is the only means by which cure can be anticipated. A Special Clinic, under the supervision of an Honorary Specialist, has been carried on during the year. The establishing of the Aural Clinic will, I hope, materially diminish the number of chronic running ears in the Schools, as advantage is already being taken to get the condition adequately treated in the early stage. Apart from the presence of wax in one or both ears, deafness was found to be due to Middle Ear Diseases caused by Measles, Scarlet Fever, or other infective Catarrhal Disease and Tonsils and Adenoids. Adenoids are found to be almost constantly present, and their removal has been found essential to successful treatment.

Treatment is urged in every case, and the necessity of persistence pointed out if attendant dangers are to be avoided.

Further particulars of the work carried out will be found in the report of the Aural Clinic, and short article advocating the ionization treatment of Otorrhœa.

(h) Dental Defects.

The teeth are inspected at the Routine Medical Inspection by the S.M.O., and the children forming the five to nine years old group are inspected by the Dentist in the Schools, together with those who have been previously treated.

The parents of those children found at the Routine Medical Inspection to have defective teeth are informed of the fact and recommended to seek treatment. The Head Teachers are also notified and asked to support the advice given. The Dentist refers those children requiring treatment ascertained at his inspection to the Dental Clinic for subsequent attention, if treatment has not been otherwise obtained. Four sessions per week were given by the Dentist to inspections, re-inspections and treatment.

The findings at the inspections were as follows :—

		Total Number Inspected.	Percentage showing. Defective Teeth.
Dental Inspection	Boys... ...	1636 ...	66 per cent.
	Girls... ...	1730 ...	56 ,,

It is anticipated the examination by the Dentist would be more thorough and, supported by the use of the mirror, etc., many small points of caries not observed at the medical inspection would be readily detected by the Dentist. An enormous amount of work of a conservative character is now being carried out by the Dentisit.

(i) Crippling Defects.

The most common causes of crippling conditions are :—

(a) Tuberculosis of Bones.

(b) Infantile Paralysis.

Rickets, Congenital Deformities and Accidents also contribute.

The Tuberculosis cases are referred to the Tuberculosis Officer, and are kept under our joint observation, with mutual endeavours to secure appropriate treatment, and insisting on the parents giving the necessary facilities. For active surgical and orthopædic treatment removal to a general or special hospital is required. The lack of local provision for massage is felt when they are subsequently sent home for convalescence. Complete remedy is often not obtained on this account, and the benefit of the previous treatment lost. It is hoped to establish an Orthopædic Clinic during the present year.

9.—OPEN-AIR EDUCATION.

There are no Open-air Schools or Class-rooms in the area.

The Teachers are urged to utilise the playgrounds as much as possible in suitable weather for lessons, but the atmospheric conditions of this district are not altogether suitable, being entirely industrial, and the proximity and exposure of the playgrounds to the streets, with the constant traffic, make it difficult for the children to give sufficient attention to their work.

A few of those children in which it is considered most necessary are sent to open-air residential schools for some months, with most beneficial results.

Open-air classes, or better still, one or more open-air schools in the area, would be a boom to scores of children who are starving for better hygienic conditions, and who cannot possibly be getting more than a fraction of the benefit from the instruction given on account of their low physical health. The School Camp for which provisional approval has been given will, at least to some extent, meet the situation.

10.—PHYSICAL TRAINING.

The general scheme for Physical Training in the Schools is formulated jointly by the S.M.O. and the Organiser of Physical Training.

The S.M.O. takes advantage of every opportunity to observe the classes and dlscuss with the Instructor any matters which arise. He also advises—in regard to individual children, either referred to him for the purpose or which are met with in other ways—as to a modification of the training, application of special training, or entire omission of physical exercises.

Greater and more intelligent interest is being taken in the subject by teachers and pupils alike.

The establishment of the Primary Day Schools Aasociation Football League has greatly stimulated the enthusiasm for out-door organised games, and where the teachers show their interest in the movement, distinct evidence of the development of the team spirit is apparent.

11.—PROVISION OF MEALS.

Dinners only are provided by the Authority, and are partaken of in a centrally situated dining-room, with kitchen attached.

The children attending distant schools are brought in by bus.

Meals are provided six days a week and continue through the holidays.

The dietaries are submitted for the approval of the School Medical Officer before being adopted.

The children are recommended by the teachers, and the circumstances of the parents ascertained by the School Attendance Officers and judged on the scale of income adopted by the Education Committee.

The cases are approved by the School Medical Officer.

Appended is a list of the menus at present in use :—

MONDAY.

Soup and Rice Pudding.
6 lbs. Meat
4 lbs. Haricot Beans
3 lbs. Lentils
3 lbs. Barley
3 lbs. Turnips
3 lbs. Carrots
4 lbs. Onions
Rice Pudding

TUESDAY.

Meat and Potato Pie
6 lbs. Meat
40 lbs. Potatoes
3 lbs. Flour
1 lb. Lard

WEDNESDAY.

Stewed Beef and Jam Roll.
6 lbs. Beef
40 lbs. Potatoes
4 lbs. Peas
1 lb. Flour
Jam Roll and Custard

THURSDAY.

Irish Stew.
6 lbs. Meat
40 lbs. Potatoes
4 lbs. Carrots
4 lbs. Turnips
4 lbs. Onions

FRIDAY.

Fish and College Pudding.
$5\frac{1}{2}$ lbs. Fish
4 lbs. Peas
2 lbs. Lard
40 lbs. Potatoes
College Pudding and Custard

SATURDAY.

Meat and Potato Pie.
6 lbs. Meat
40 lbs. Potatoes
3 lbs. Flour
1 lb. Lard

The quantities given above are for 50 dinners.

Average cost per meal	...	...	3d.
Average number of children fed	...		44·2

The dinner consists of one course only.

In addition, a local Charity supplies milk to recommended cases through the Director of Education.

Great care is exercised as to the cleanliness of the kitchen, dining room and utensils ; the food is of the best, well cooked, ample and most cleanly served, and the Superintendent is to be congratulated on the very efficient manner the service is carried out.

12.—SCHOOL BATHS.

No school baths are provided, but the Leigh Corporation have allotted hours for the exclusive use of their swimming baths by school children, accompanied by a teacher. Use is made of this privilege to the fullest extent.

13.—CO-OPERATION OF PARENTS.

The parents of every child in the age group about to be inspected receives a notice from the Head Teacher that their child will be medically examined on such a day and time, with an invitation to be present. The parents of the younger children avail themselves of the opportunity in considerable numbers, and the parents of the older children are now attending in increasihg numbers. Their presence is a great advantage to the S.M.O. and a benefit to the child, inasmuch as advice with regard to treatment is much more often acted upon than in other circumstances. The defective condition can be pointed out and the necessity for treatment explained in a manner much more appreciable than by letter. The lack of reasonable convenience for waiting at the schools is certainly a deterrent in some cases.

In every case of an ascertained defect the parent is notified of the nature of the defect, and a request is made to consult the private medical practitioner with a view to securing appropriate treatment. The parent is later asked to bring the child to the Inspection Clinic, so that the efficiency of the treatment, if obtained, may be ascertained.

If the necessary steps have not been taken, or are insufficient, further effort is made to impress them of its importance, or the service of the Treatment Clinic is offered.

It is evident without the co-operation of the parent little treatment can be secured, and that even of the minimum value.

The ability to offer treatment for the more prevalent defects at the Special Treatment Clinics has made the service much more efficient, and enabled the School Medical Officer to more or less insist on treatment being obtained when necessary, but, as mentioned elsewhere, the request for payment for the treatment is a deterrent to some extent.

14.—CO-OPERATION OF TEACHERS.

(1) Medical Inspections.

The Teachers undertake to inform the parents of the children in the age group about to be inspected by a notice giving date, time and place, and an invitation to be present at the inspection.

They ascertain by circular the previous illnesses from which the individual child has suffered, entering them with the height and weight, age, etc., on the Medical Inspection Card.

They make arrangements as convenient as the circumstances of their school building will allow for suitable rooms for the use of the S.M.O. and waiting-room for the parents.

The Head Teacher—and frequently also the Class Teacher—is present at the inspection, assisting in the general management, giving information of facts observed by them with regard to the children, and receiving opinions and advice from the S.M.O. in connection with the defects found.

The Teachers also present for special inspecrion, at the Routine Medical Inspection, children not of the age groups due for Routine Inspection who, in their opinion, show evidence of physical or mental defect. Such children are sent by the Teachers at other times to the Inspection Clinic and Minor Ailments Treatment Clinics.

(2) Following Up.

At the close of the Routine Inspection of a school a list is sent to the Head Teacher of those children found defective, and giving the nature of the defect. They are asked to take advantage of every opportunity to bring the defect before the parents and urge the importance of securing treatment.

Any material change for the worse in the condition of the ailment is brought to the notice of the S.M.O. by the child being sent to the Inspection Clinic.

(3) Treatment.

I am satisfied the Teachers are anxious to co-operate in securing treatment and try to influence parents as opportunities occur. They send the children who are referred to the Treatment Clinics regularly and punctually. A system of "Clinic Attendance Cards" is in use for those attending school, whereon is marked the date and time the child is next to visit the Clinic, the time the child leaves school for the purpose and the time she is dismissed from the Clinic. The card is retained by the Teacher till attendance at the Clinic is no longer required, except when the child is actually making the visit and returning.

I think the Teachers appreciate the definite information of the child's movements obtained by this means, and realise they are more than compensated for the attention required to carry it out.

The frequency with which the Teachers send children notified to them by the S.M.O. to be suffering from certain defects, especially those defects for which no treatment is provided by the Authority, convinces me that they are anxious to secure a remedy as early as possible for those known by them to require it.

15.—CO-OPERATION OF SCHOOL ATTENDANCE OFFICERS.

(1) Medical Inspection.

By procuring the entrance to school of all children as soon as they attain school age, and ascertaining the arrival in the district of all new-comers, they make the group submitted for inspection as complete as possible.

(2) Following Up.

The School Attendance Officers are made aware of those cases of defects in which no effort is made to secure treatment. If absence from school on account of sickness follows, capital is made of the parents' neglect and dealt with accordingly.

Absence from Inspection or Treatment Clinics are also reported to him. His investigation usually secures attendance.

The list of absences on account of alleged sickness is supplied by the Attendance Officer to the Nurses, who visit the homes as far as the limited staff will allow or the children are called to the Inspection Clinic if the nature of their ailment will allow.

(3) Treatment.

The School Attendance Officers use their influence to induce parents to seek the medical treatment advised. If persistent neglect to do so, or refusal is met with, and exclusion from school is involved, the officer reports the parents to the School Attendance Committee. There is a daily consultation and exchange of information between the School Attendance Officers and Nurses, who in turn report to the S.M.O. any matters considered by them to be necessary. All cases of persistent irregularity of attendance, and those absence through doubtfully alleged sickness, are referred by the School Attendance Officers to the S.M.O. for examination and report. Also those alleged to be permanently unfitted to attend school. The officer likewise reports all cases of non-notifiable infectious diseases ascertained by him.

The officer also contributes to the compilation of the lists of cripples, blind, deaf, epileptics and mentally affected.

There is also a very close co-operation between the School Attendance and School Medical Services with a view to securing as regular attendance as possible, or if absence is necessary on account of sickness, procuring the appropriate treatment as speedily as possible.

16.—CO-OPERATION OF VOLUNTARY BODIES

The services of the S.P.C.C. are utilized to promote cleansing of children's heads and bodies and in securing treatment by neglectful parents. The local Inspector has rendered an invaluable help in these directions with the greatest willingness. His services have been exceedingly useful in dealing with negligent parents of children suffering from defects of vision.

A weekly consultation is held between the Inspector, School Attendance Officer and a representative of the Medical Service.

The Leigh Guild of Help has frequently responded with assistance in cases represented to them as deserving, Other organisations have also assisted in the payment of train fares for cases visiting special Hospitals for treatment, particularly the Leigh District Nursing Association.

The Leigh Needlework Guild and the Save the Children Fund have provided a considerable number of articles of clothing for necessitous children.

These organisations administer their help to school children through the Nurses.

The Local Clog Fund—through the Chief School Attendance Officer—provide necessitous children with clogs.

17.—BLIND, DEAF, DEFECTIVE AND EPILEPTIC CHILDREN.

Lists are being compiled of children suffering from :—

Crippling Conditions	Blindness
Physical Defects.	Deafness
Mental Defects.	Epilepsy

Names are contributed whenever and wherever met with at Routine Inspection, Inspection Clinics, or suggested by the Teachers or School Attendance Officers.

The cases are reported to the School Attendance Committee and appropriate treatment recommended. The Committee send children to the following Institutions :—

Blind.	Henshaw's Blind Asylum, Old Trafford, Manchester.
	Catholic Blind Asylum, Liverpool.
	Thomason Memorial School for Blind, Bolton.
	Queen Alexandra Royal Schools for Blind, Birmingham.
	Fulwood Homes for Blind, Fulwood, Preston.
	Royal Schools for Blind, Leatherhead, Surrey.
	Leeds School for Blind, Leeds.
Deaf.	Thomason Memorial School for Deaf, Bolton.
	St. John's R.C. Institution for Deaf, Boston Spa.
	Royal Schools for Deaf, Manchester.

Physically Defective	Royal County Hospital, Heswall.
	Children's Hospital and Open-air School, West Kirby.
	St. Vincent's R.C. Surgical Home for Crippled Children, Eastcote.
Mentally Defective	Leeds Special School for Mental Defectives, Armley, Leeds.
	R.C. Special School, Field Heath House, Hillingdon, Middlesex.
	Hastings and St. Leonard's Special School, St. Leonards-on-Sea.
Epileptic.	Maghull Home for Epileptics.
	St. Elizabeth's R.C. Epileptic Home, Much Hadham, Herts.

If the parents are in a position to do so, they are asked to contribute to the maintenance and education of their child, the sum being fixed in each case on its merits by the Education Committee.

18—SUMMARY OF WORK OF THE SERVICE.

(a) Number of visits to :—

Schools	218
Departments	249
Homes of Children	1140

(b) Number of Certificates issued for :—

Exclusion	553
Re-admission	594

(c) Number notified to attend School Clinic...	9243
Attended	7840
Number of Communications to Parents...	7020
Attendances at Treatment Centre ...	5541
Number reported to N.S.P.C.C... ...	12
Number of Inspections for Cleanliness...	15199

J. CLAY BECKITT,

School Medical Officer.

Annual Report of the Ophthalmic Clinic.

Staff :—Dr. J. SACKVILLE MARTIN, M.D., M.R.C.S.

Dr. G. H. SHAW, M.B., Ch.B.

Clinic : Stone House.

To the School Medical Officer, Leigh.

Sir,

We have pleasure in submitting our Report for the year 1924.

During the year 25 Clinics were held.

The cases were referred to the Clinic by the School Medical Officer, under whose general supervision the work was carried out.

The patient is examined by retinoscopy under a mydriatic and a week later, subjectively. A third test is made with the spectacles *in situ* to check the correctness of the lenses and the fit of the frames.

Below are particulars of the work in tabular form :—

Nature of Treatment.

Examined by Retinoscopy.	Subjective Examination.	Spectacles Prescribed.	Spectacles Supplied.	Re-examined with Specs.
137	137	129	129	99

Nature of Defect.

Hypermetropia.	Myopia.	Astigmatism.	Various.
52	34	49	2

Sundry.

Referred to Eye Hospital	...	...	1
Referred to School for Blind	. .	...	Nil
Spectacles unnecessary...	...	...	2
No change in Spectacles	...	...	2
Number of Clinics held...	...	...	25
Number of Attendances	...	...	367

A parent is invariably in attendance and receives the necessary instructions as to the use of the glasses and future attention.

J. SACKVILLE MARTIN, M.D., M.R.C.S.

G. H. SHAW, M.B., Ch.B.

Annual Report of the Aural Clinic.

Staff :—Dr. F. PEARCE STURM., Ch.M.

Clinic : Stone House.

To the School Medical Officer.

Sir,

I beg to present the Report of the Aural Clinic for the calendar year 1924.

The Clinic is held on Friday afternoons, but cases requiring daily treatment are attended to by the Nurse according to instructions.

The Clinic has been established for the purpose of carrying out prophylactic treatment on scientific lines. Its object is not to elaborate mastoid operations, but by sufficiently early treatment to forestall and render them unnecessary. Its work is founded upon the belief that the Eustachian tube begins at the tip of the nose, and that the tympanum is always affected by way of the Eustachian tube.

The Staff consists of :—

(1) The School Medical Officer.
(2) The Surgeon to the Clinic.
(3) Clinic Nurses.

Patients are referred to the Clinic in the first instance by the S.M.O., always with due regard to the interests of any private medical practitioner concerned. Here they are examined by the Surgeon, who takes of each a detailed record, which includes hearing tests, and carries out or immediately supervises such treatment as may be necessary. Particular attention is paid to the daily dry aseptic dressing of all early cases of otorrhœa. Each patient is meticulously examined for the presence of adenoid growths, by anterior and posterior rhinoscopy, in such cases as will submit to these procedures, and when necessary by digital palpation, irrespective of such obvious indications as mouth-breathing and the so-called adenoid facies, for experience proves that

these are late symptons which only too frequently indicate that irreparable damage has been done to the ear. Digital examinations, as a matter of fact, is rarely necessary, and even rhinoscopy is largely a finesse. The presence of granulations upon the posterior pharyngeal wall of a child, even in the absence of all other signs, is pathognomonic of adenoid vegetations, and can be relied upon. A small pad of suppurating adenoids, too insignificant to produce any of the classical symptoms of nasal obstruction, is, nevertheless, sufficient to initiate and perpetuate an intractable otorrhœa, which survives the most brilliant mastoid surgery, yet subsides upon the removal of its insignificant and often overlooked cause. When this simple truth is more universally realised the surgery of the temporal bone will always begin, and usually end, in the naso-pharynx.

Aural Examinations.

During the year ending December 31st, 1924, a detailed aural examination was made of 197 school children. Nine only of these had been referred to the Aural Clinic for deafness severe enough to be noticeable to parent or teacher, but 196 of them were found to have some pathological change in one or both ears. The one whose ears were quite sound was a girl aged 11, from whom a nasopharyngeal fibroid tumour has since been removed. An account of the case and a photomicrograph of the tumour will appear elsewhere.

The results of re-examination have been most encouraging particularly in the cases of tonsillectomy and adenoidectomy. Not only has the general health of these children improved so strikingly that all the parents interviewed have expressed their gratitude to the Clinic and their appreciation of its work ; but defects less obvious to them, though not less serious in their possibilities to the child, have disappeared or improved.

Attention should be drawn to the fact that middle-ear disease, with all its latent possibilities of disaster, may and does exist in children who are not obviously deaf, who have little or no obvious discharge, and who complain, if at all, of nothing more alarming than an occasional twinge of earache. During the past two years I have had several cases which required operation for brain-abcess due to extension of disease from the middle-ear, and without wishing to attach more importance to these unfortunate cases than the circumstances warrant, I do most emphatically feel it my duty to draw the attention of all concerned to the

fact that the most dangerous cases of otorrhœa, those in danger of mastoid disease, meningitis and brain abcess, are not the ones with a profuse discharge which draws attention to itself. The most dangerous cases are those in which the surgeon finds, upon examination, a tiny perforation in the upper non-vibrating portion of the ear-drum, and the parent or guardian is unaware of any dischare at all, it is so slight in quantity. There may be no discharge and the perforation may be hidden beneath a tiny scab and escape notice unless carefully sought, but the dangers which threaten hearing and life exist. These conditions can be cured if taken in time.

Disappointment is frequently expressed at the slow progress under treatment. To attend a Clinic for weeks or months, or in some cases years, is undoubtedly wearisome, but the alternative is worse. Many of these cases could be cured in a short time by a simple conservative operation, but it requires a stay in hospital, under skilled nursing ; and so long as there are not beds for children, or too few beds, we have to depend upon slower methods of cure.

The lack of beds is a noticeable deficiency in the service, but there is a worse. We have no instalment in the Leigh Aural Clinic for the treatment of tympanic infection by zinc-ionization. This has now been fully tested by aurists all over the world, and is generally admitted to be the conservative treatment of otorrhœa. Chronic cases which have been under treatment for years have been cured by one application of a few minutes duration. The apparatus is installed in almost every Clinic and special hospital in this country. A significant indication of its value is the establishment by the London County Council of an Ionization Centre under the supervision of an aural specialist.

Furthermore, with regard to the routine aural examination of children, there follows the objective otoscopic signs of chronic tubo-tympanic catarrh arranged in the order of the frequency with which they have occured ;

(1) Absence or distortion of the light reflex.

(2) Congestion of the drum.

(3) Prominence of the short process of the hammer-bone.

(4) Prominence of the anterior or posterior folds.

(5) Grooved-glass dullness of the drum.

(6) Caleaceous patches in drum head (two cases in 197 examined). As the patch was in each case in the place where a perforation is common, they were probably scars which had undergone calciflication.

(7) Excessive mobility of the hammers (1 case).

Tuning Fork Tests in Children.

Although the deafness treated at the School Aural Clinic is chiefly of the middle-ear type, it does not follow that tuning-fork tests are useless. They are upon the contrary of distinct value in children old enough to give intelligent answers to questions. Middle-ear disease in the young is more often accompanied by labyrinth changes than is suspected. The tuning-fork detects not only such early rumours of future disaster, but also errors in the mechanism of tympanic accommodation long before deafness is advanced enough to attract the attention of parent or teacher. The first sign of tympanic disability in the child is a temporary raising of the lower tone limit which renders him deaf to a low pitched fork while he can still hear the spoken word. Early diagnosis being so important in these cases I venture to describe a ready method of recording tests in the hope that it will prove of value to the school otologist. Four forks only are required : C64, C128, C256 and the high fork C2048. The test takes longer to describe than to perform, and is as follows :—

(1) Air conduction for each fork is tested in both ears and the result marked positive or negative on the chart.

(2) Air conduction is compared with bone conduction by fork C256. In the normal child air conduction is about twice as long as bone conduction $\frac{AC}{(BC)}$. In middle ear deafness hearing by bone conduction is the longer $\frac{BC}{(AC)}$. In labyrinth deafness air conduction is longer than bone conduction as in the normal ear, but both are shortened $\frac{AC}{(BC)}$.

(3) If the patient hear the vibrating fork upon the out wall of the mastoid antrum as long as the surgeon feels the vibrations with his fingers, bone conduction is said to be normal (BCN).

(4) If the surgeon feels the vibrations longer than the patient hears them by conduction, then bone conduction is shortened or abnormal $\frac{N}{(BC)}$.

(5) If the patient hears the vibrations longer than the surgeon can feel them, bone condition is prolonged above the normal $\frac{BC}{(N)}$.

(6) Lateralization of sound (Weber) is detected in the usual manner by fork C256 on the vertex. Normally it is heard in each ear with equal intensity. In deafness due to defects in the conducting apparatus it is heard louder in the deaf ear. In labyrinth deafness it is louder in the sound ear. (Forks of different pitch sometimes give different results in certain rare cases of labyrinth deafness). A capital W denotes the side of lateralization.

The results of these tests are recorded before and after the completion of treatment for which a rubber stamp may conveniently be used :—

After R	Before	TESTS	Before L	After
		C64		
		C128		
		C256		
		C2048		
		RINNE		
		WEBER		

The records fall naturally into four groups of deafness, according to the power of hearing by air conduction in the worse ear.

Group 1 fails to hear C64 but can hear C128.

Group 2 ,, C128 ,, C256.

Group 3 ,, C256 ,, C2048.

Group 4 cannot hear any of the four forks by air conduction.

Group C can hear all the forks by air conduction.

Acute Otitis Media.

The correct treatment of acute otitis media is an important factor in the prevention of destrous results of middle ear disease. Unfortunately little importance is attached by parents or guardians to the occurence of ear-ache in children. Some antiseptic fluid is poured into the affected ear, or heat applied to ease the pain, and nothing further is done in the way of treatment until the child is referred by the school authorities to the Aural Clinic with a discharging ear which takes months or even years to cure, or is incurable, and may ultimately need a serious operation to save life.

Every case of ear-ache in a child calls for immediate attention. If there are signs of pus formation, the tympanic membrane is to be incised (not punctures) under light general anesthesia with aseptic precautions of the most rigid character. If this were done as a matter of routine there would be fewer tragedies to record. Parents frequently enquire why the drum is opened surgically rather than permitted to rupture spontaneously. There are two reasons :—

(1) To save life. Incision provides immediate drainage for septic material, Mastoid disease, brain abcess, meningitis, or all three, may and sometimes do develop before spontaneous rupture occurs.

(2) To save the hearing. A clean incision heals without a scar and prevents immediate or future damage to the delicate mechanism of tympanic accommodation. An abcess permitted to rupture the menbra tympani leave a perforation which takes longer to heal or may never heal at all. The indications for myringotomy in acute otitis media are as follows :—

(1) Pain, pyrexia and bulging of the membrane.

(2) Mastoid tenderness.

(3) Spontaneous perforation without marked relief of symptons.

(4) Brain symptons ; vomiting, convulsions, retraction of the head, drowsiness.

Acute otitis medea in children, particularly infants, is frequently accompanied by meningeal symptons which at once disappear upon incision of the membrane and evacuation of a tiny bead of pus from the tympanum. It is necessary, however, to differentiate, for not every child with head symptoms, even when there has been severe ear-ache,

is suffering from acute purulent tympanitis. Within a recent period two such cases were admitted to hospital under the present writer. There was a history of severe ear-ache in both these children; upon admission one was quite deaf and had a temperature of 104°; both had marked meningeal symptons; but as the otoscopic image in both was normal, and there was no madtoid tenderness, no operation was performed, and both recovered completely with perfect hearing.

Some otologists are of the opinion that myringotomy should be performed in every case of acute otitis media in children. Ballanger goes so far as to write: "It is not necessary to wait for pain and bulging of the membrane; in fact it is *culpable negligence* to do so, as every hour adds to the destruction of tissue." Politzer, however, whom the present writer considers to be still the final authority in most questions of ordinary otological practice, is of a different opinion: "Paracentesis is contra-indicated in the milder forms of acute middle-ear inflammations; the reason for this is due to the fact that the author has repeatedly seen in bilateral affections, or protracted muco-purulent discharge arise in the one ear after this operation, while in the other, in which paracentesis was not performed, healing and complete restoration of the hearing power take place much earlier by Politzerization."

As most cases have received domestic treatment in the shape of some variety of ear drops the drum-head will be hidden from view by a layer of macerated epithelium which defies the syringe, but is readily removed by filling the meatus with pure ether. This is permitted to remain till half evaporated, which takes but a few seconds, as ether boils at the body temperature. The ear is then cleansed with a mop of sterile wool and the drum inspected. The following practical points should be remembered when this operation is about to be performed.

(1) Myringotomy without a general anesthetic is not justifiable, except in adults. The pain is atrocious and local anesthetics are useless in children.

(2) If the landmarks are not altogether obliterated the incision is to be made from below upwards, behind and parallel to the handle of the malleus. An incision from above downwards may dislocate the slopes with possibly, fatal results from infection of the labyrinth. A vertical incision beneath the hammer may open the jugular bulb, which in young children sometimes projects into the tympanum. An incision below

and at right angles to the hammer severs a part of the drum-head which holds that bone in position, and permits of a subsequent retraction which may interfere with its function.

(3) If no landmarks are visible the incision is to be made from below upwards through the most prominent part of the drum, which in position will always be the posterior segment with the exception of an abcess pointing at schrapnell membrane.

(4) The incision is to be carried up to and into the tympanic margin of the external meatus, dividing the posterior fold of the membrana tympani, and establishing attic drainage.

(5) A further reason for the posterior incision is the fact that the drum is here furthest removed from the inner tympani wall, which at all costs it is desirable to avoid. In adults, in whom a local anesthetic may be employed, a further reason is that the posterior segment is the least sensitive area of the tympanic membrane.

The operated ear is dressed daily with an aseptic drain of half-inch ribbon gauze, inserted after careful cleansing with 70% rectified spirit to which carbolic acid has been added in the proportion of ten grains to the ounce. The drum heals in about ten days. Hydrogen perozide drops are to be forbidden, as they liberate bubbles of gas which may spread infection to the many minute recesses formed by the complicated implications of the tympanic mucus membrane. Inflation with the bag is unnecessary.

The possible dangers of the operation, injury to the facial nerve or jugular bulb, infection of the labyrinth from fracture, of the slopes and rupture of the capsular ligament, may be ignored by one acquainted with the anatomy of the parts and accustomed to the somewhat delicate manipulation of aural surgery.

The Respiratory Mechanism of the Adenoid Child.

Certain details in which the child differs from the adult must be taken into account in any consideration of the respiratory mechanism. The nasal cavities are actually and comparatively smaller than in the adult. At birth the upper olfactory region and the lower respiratory region are close together, but as growth the olfactory region recedes from the floor of the nose.

The para-nasal sinuses are comparatively small in the child. The maxillary antrum and the ethmoidal and sphenoidal sinuses are present at birth but very small. The frontal senus does not develop till about the end of the second year. The flat toneless character of the infants' cry is due to the small size of these cavities, one of whose most important functions in later life is to act as resonatory chambers for the voice. It has been experimentally demonstrated that the sinuses empty during inspiration and fill during expiration, that is to say they are filled always by warmed and saturated air.

They are too small to act as efficient warm-vapour reservoirs in the child, who is consequently more liable to air from infection. The narrowness of the nose in the child permits complete obstruction to be produced by a moderate degree of vascular congestion of the mucous membrane, even in the absence of any structural abnormality or pathological growth.

The highly-vascular early obstructed upper respiratory tract of the child is very favourable ground for the proliferation of micro-organism and consequent infection of the tissues. The small sizes of the para-nasal sinuses protects them to a large extent from the spread of such infection, which is very liable however to reach the thorax or the tympanic cavity, frequently with disastrous results.

In examining the thorax of the child, the following factors must be borne in mind :—

(1) The percussion dullness of heart and liver are normally larger than in the adult, owing to the comparatively small size of the lungs.

(2) The small size of the lungs make it difficult to localize pathological changes.

(3) The right apex phenomena are marked in childhood. The right apex is less resonant than the left and the breath sounds harsher.

Blowing breath sounds over the right apex in quite normal children are not infrequently mistaken for evidence of tuberculosis.

Nasal Respiration.

It is impossible to exaggerate the importance of a healthy nose to the child. The self-regulating mechanism by which its respiratory functions are fulfilled consists of the erectile tissue of the middle and

inferior turbinates and the posterior border of the septums. The erectile tissue contains venous plexuses whose calibre is controlled bp unstriped muscular tissue innervalid through the sphero-palative ganglion and the cranial nerve. The number of important reflexes which have their origin in the nose are an index of its physcological importance. Sneezing, lachrymation, coughing, gasping, together with other respiratory and many circulatory effects, are caused by stimulates of the Vth cranial through the nasal mucosa.

The stream of inspired air does not pass in a horizontal direction along the floor of the nose to the pharynx, but ascends to the middle meatus and then sweeps backwards and downwards to the posteriornares. Dust aud other particles, including microbes (according to Thomson from 1,500 to 14,000 micro-organisms enter the nose during an hour's quiet respiration) are entangled in the bactericidal nasal mucous and swept towards the pharynx by ciliary action. If too cold, the inspired air is raised to the body temperature during its passage through the nose ; if too hot, it is cooled to the required degree. It is at the same time saturated with moisture. A quart of water is thus supplied by the nose in 24 hours.

The air enters the nasal chambers some 20,000 times a day, and should continue to do so without intermission during the whole life of the individual. The functional activity of the turbinal body is ceaseless, and, for its size, exceeds the functional activity of any other organ of the body. It is calculated that two quarts of water a day are given up to the inspired air by this body and the lining of the respiratory tract, and that all the air that enters the larynx, no matter what the outside temperature may be, is warmed to near the temperature of the body.

Mayo Collier :

The para-nasal sinuses act as resonating chambers in relation to speech. The flat unpleasant voice of nasal obstruction needs no description. While pitch and volume of the voice are regulated by the tension of the vocal cords and the power of the lungs, the tone of the voice depends upon efficient ventilation of the sinuses.

In the presence of adenoids the respiratory functions of the nose are entirely in abeyance.

The normal act of respiration consists of two phases, inspiration and expiration, and depends upon the integrity of a complex tubular and neuro-muscular mechanism which consists of :—

(1) A medullary respiratory centre.

(2) Respiratory muscle groups.

(3) Thoracic skeletal structures.

(4) The lungs with their

(5) Nerve paths to and from the respiratory centre.

(6) The blood circulation apparatus.

(7) The respiratory air-way extends from the anterior to the ultimate pulmonary.

Inspiration.

The diaphragm contracts and descends, deepening the chest by its descent, aud at the same time tending to narrow it by an inward pull upon the thoracic walls. This narrowing tendency is overcome by the intercostals, each of which pulls from the rib above upon the rib below, and aided by the leva costarum and subcostales raise the ribs and widen the thorax as a whole. At the same time the scaleni immobilize the first two ribs and provide a fixed point from which the intercostals can act.

The secreti posteriores further widen the thorax by drawing the lower ribs downwards, backwards and outwards, and in unison with the quadratus lumborum fix the lower ribs for the action of the diaphragm.

According to Kieth, the iliocostalis, attached to the six lower ribs act syneryically with the diaphragm. The increase of negative pressure with the thorax and of positive pressure with the abdomen, both consequent upon the descent of the diaphragm, brings an increased volume of blood to the heart on each act of inspiration.

Expiration.

The old view that expiration is carried out without the aid of muscular action is abandoned. Although the last word has not been said upon the question there is little doubt that factors additional to the elastic recoil of the lung and costal cartilages are of importance. Whether or not the interosseus fibres of the internal intercostals lower the ribs by their contraction cannot be decided upon any available evidence that I am acquainted with. It is, however, certain that as of primary mechanical importance in expiration we have (1) the elastic

recoil of the lungs and costal cartilages, (2) the inertia of the chest wall, (3) the action of the abdominal muscles, (4) the action of the intrinsic muscles of the lungs themselves (the bronchial sphincters), (5) the elevation of the diaphragm.

In normal respiration there is the further factor of movements at the manubro-sternal joint, whose action seems to be necessary to ensure efficient ventilation of the apices. Keith, however, is of the opinion that free movement of the first pair of ribs and the manubrium is not sufficient to secure complete apical expansion, for which he considers free play of the diaphragm to be much more essential. Attention was drawn to this point so long ago as 1859 by Freund, who described a series of cases of pulmonary disease in which he demonstrated orsification of the cartilage of the first rib, but the full significance of the manubro-sternal joint was not realised until studied by Hasse, Rothschild, Keith and others.

According to Keith the manubrium-sterni, together with the first pair of ribs and Sibson's fascia, forms a kind of lid for the thorax. The thoracic lid is hinged behind to the first dorsal vertebra ; its anterior end articulates with the body of the sternum, every elevation of the sternum being accompanied by a movement at the sterno-manubrial joint in those with a normal type of respiration.

The relative importance of the factors which regulate the respiratory rhythm, that is, the rate and depth of respiratory movements, differed with the age of the subject. In the child there is little doubt, as will be shewn, that the free play of normal pulmonary reflexes are of paramount significance. Failure of the right heart to supply sufficient blood to the lungs, or of the left heart to supply sufficient blood to the brain, may in exceptional cases be a factor in the production of an abnormal respiratory rhythm ; but in the case under discussion, viz., that of the adenoid child, abnormal respiratory rhythm is invalid and maintained by abnormal sternuli from the nasopharynx.

It is commonly taught that the insufficient aera of the blood and the thoracic deformity are due to the adenoid child's inability to take in sufficient air because of the mechanical obstruction caused by growth. This cannot be the correct explanation in the many cases with adenoids but no enlargement of the faucial tonsils. There is in these no mechanical obstruction between the outer air and the glottis, and, the mouth being wider than the nares, it would be possible to inspire through

it a correspondingly greater volume of air but for the presence of some factor of deeper physcological significance than mechanical obstruction of the posterior. In fact, in many cases in which the thoracic deformity is extreme, and the respiratory rhythm furthest removed from the normal, the adenoid growth, which is the cause of all the trouble, is too small to cause any noticeable degree of nasopharyngeal obstruction. The position of expiration which the thoracic structure of the adenoid child tend always to assume, can be explained only by the recognition of this further factor, which is reflex stimulation :—

(1) The presence of the adenoid growth in the naso-pharynx send constant expiratory sternuli through the glossopharyngeal nerve to the respiratory centre in the medulla.

(2) The inspiration of raw air by the mouth irritates the sensory nerve of the parynx (the superior laryngeal). The purely expiratory nature of this stimulation reinforces the expiratory reflexes from the nasopharynx through the glossopharyngeal.

(3) Such irritation of the superior laryngeal nerve is a vaga stimualation, which, by reflexily decreasing the calbre of the bronchioles, furthermore increases the resistence of the inspired current.

The effect of these stimuli of interference is ultimately to establish an abnormal respiratory rhythm. The adenoid subject never takes a full breath simply because he cannot be bothered. Expiratory spasm and thoracic deformity in vicious circle forbid it. The dreaming child, intent upon his subjective world of make-belive, is only too ready to adapt himself to the exigencies of a physical body of which he is not very conscious. He certainly makes little attempt to overcome its deficiencies by an act of will. The thoracic cage fails to develop. Air stasis and areas of pulmonary collapse, particularly in the cases of the lungs, predispose to and actually cause bronchitis. A similar condition of stagnation and deficient ventilation of the apices, with resultant local lowering of resistance, cannot but prepare these areas for a possible tuberculosis implantation. In my experience, 98 per cent. of school children, with stooping shoulders, flattened infra-clavicular regions, and apical percussion dullness, if not actual apical bronchitis are found upon laryngological examination to be suffering from adenoid hyperthropy. *It cannot be too widely known, and it is not known, that in children, whatever may be the truth in adults, an apical bronchitis, even a unilateral one,*

is not necessarily tuberculosis and frequently disappears upon the restoration of a naso-pharyngeal airway, followed by suitable breathing exercises. Here also is a reflex act, caused by stimuli passing from pharynx to vomiting centre, again by way of the glossopharyngeal nerve.

Examination of the chest often reveal a respiratory catarrh, the only signs of which may be faint crepilations where the lingula of the left lung overlaps the heart. In long-standing cases, even in the absence of any noticeable degree of adenoid hypertrophy, certain more or less well defined aear of percussion dullness are usually to be found. They are conveniently classified as follows :—

(1) Adenoid atalectasis, i.e., dullness due to actual collapse of areas of lung tissue which occurs (a) in one or both apices ; (b) in one or both cases beneath the angles of the scapuloe.

(2) Right paravertebral dullness due to enlarged bronchial glands. This is not necessarily an indication of tubercular or other infection ; the mediastinal lymph glands hypertrophy together with pharyngeal tonsil, and from the same causes.

(3) An area of right parasternal dullness, a percussion shadow cast upon the surface from the overfilled right innominate vein which cannot empty itself because of the enlarged bronchial glands which obstruct the veins at the root of the lung. There is a vagal strip of dullness on either side of the manibrium sterni in most children, but this disappears in deep inspiration. The parasternal dullness in the adenoid child, when it is present, is to the right of the sterni greater area, and is unaffected by deep breathing.

The service at the Clinic appears to be highly appreciated, and has been well supported. So many of the cases require operation as a preliminary to efficient treatment that close co-operation between this and the Operative Clinics has been found necessary.

This has been carried out with advantage to both and enormous benefit to the patient.

The nature of the condition in most cases entails a long and persistent course of treatment of a more or less skilled nursing character.

This, I am satisfied from everyday experience, can only be secured by a Clinic of this character, supported as it is by the service of a special nurse, reasonable accommodation, and sufficient authority to ensure regular attendance.

I wish to call your attention to a method of treatment of Otorrhoæ known the "ionization" method and which has now become firmly established. It is largely adopted by Aural Surgeons as the treatment of selection. Its merits lie in the large percentage of cures and the rapidity with which this result is secured.

The treatment of chronic suppurative disease of the middle ear by the zinc ionization method, introduced into this country by Freil, has now passed its experimental stage. During the past three years it has been thoroughly tested by British Aurists, who have reported their results in the Journal of Laryngology, and the method has moveover been fully discussed at meetings of our Otological Section of the Royal Society of Medicine. The considered opinion of Aural Surgeons in general at the time of writing may be expressed as follows :—

(1) In children of school age 50 per cent. of cases of Otorrhoæ are curable by the ordinary conservative intra-meatal treatment carried out as a routine procedure at all Clinics, and are best treated by these.

(2) Of the remaining 50 per cent. there are half, or 25 per cent. of the whole, who cannot be cured by any method short of operation.

(3) The remaining 25 per cent., which do not require operation, but resist ordinary methods of treatment, are curable by zinc ionization. In the majority of these one application has been found sufficient.

Contra-indications.

The following types of cases are unsuitable :—

(1) Cases with untreated naso-pharyngeal conditions, i.e., adenoids, rhinitis, paranasal sinusitis. If these conditions are not first treated, re-infection is a certainty.

(2) Granulations in the tympanum or antrum. These are incurable without either an intra-tympanic or mastoid operation.

(3) Posterior perforations. A posterior perforation indicates mastoid involment. Such cases are entirely unsuitable ; they always need operation.

(4) Attic perforation. This is almost invariably a sign of cholesteatoma. Such cases are quite unaffected by ionization. I have several cases in which careful daily washing out of the attic an injection of aclohol has resulted in an apparent cure, but usually they resist all treatment short of cutting away the anterior attic wall, and even this frequently fails. The head of the hammer bone is nearly always necrosed.

(5) Anterior perforations with chronic tubo-tympanitis. The accompanying chronic infection of the Eustachian tube is unaffected by the ionization method as at present applied, and form an absolute contra-indication.

Suitable Cases.

Cases of pure tympanic suppuration with central perforations are the only type in which the method is constantly successful. These, however, constitute 50% of the cases which do not require operation and yet resist the routine method of treatment.

Zinc ionization is easy to apply, once the case has been diagnosed and selected ; the expense of maintenance is negligable apart from the moderate inital cost of the apparatus, and the results in suitable cases are more than encouraging. As Surgeon to the Ear and Throat Clinic of the School Medical Service, I strongly recommend this method to your favourable consideration.

The following table gives particulars of the cases dealt with at the Clinic during the year :—

New Cases	91
Required Treatment	91
Treatment given at Clinic ...	60
Referred to Operative Clinic ...	31
Referred to Leigh Infirmary ...	Nil
Inspected after Operation at Operative Clinic	129
Re-examinations	123
Total Attendances	343

Nature of Disease :—

Otorrhœa.	Deafness.	Otorrhæa and Deafness.	Adenoids.	Nasal Polypus.
27	9	24	30	1

I would express my appreciation of the facilities provided for carrying on the work of the Clinic and the care of the Clinic Nurse in carrying out my instructions, and particularly desire to emphathise my indebtedness to the M.O.H., without whose co-operation this valuable work could never even have been commenced.

I am,

Yours obediently,

F. PEARCE STURM, Ch.M.,
Hon. Surgeon to the Clinic.
Hon. Surgeon to the Operative Clinic.
Hon. Surgeon and Otologist,
Leigh Infirmary.

Annual Report of the Operative Clinic.

Staff :—Surgeon, Dr. F. PEARCE STURM, Ch.M.

Anæthetist, Dr. J. Jones, M.D.

Clinic : Stone House.

A.—Report of Surgeon.

To the School Medical Officer.

Sir,

This Clinic was established on account of the extreme difficulty of getting Enlarged Tonsils and Adenoids efficiently treated through the agency of the parents. Very few, even of the cases found to be drifting into Deafness, Chronic Otorrœa, etc., were operated on and we seemed to be ploughing the sands. A considerable list of suitable cases had consequently accumulated.

The mere presence of Enlarged Tonsils does not constitute a qualification for operation, and very few of the cases dealt with suffered from Enlarged Tonsils only. The presence of Adenoids, however small, is considered to necessitate operative treatment. The majority dealt with so far have developed into the stage of exhibiting unmistakable objective signs, but it is hoped when the older and more urgent cases have been dealt with to treat at an earlier stage, and thus prevent the more or less permanent physical effects.

The importance of the Adenoid in the production of disease has been so clearly realised of late that I felt the necessity of making some original investigation with a view of ascertaining its true significance.

I am including in this report a monograph I wrote embodying the conclusions I arrived at.

The Origin and Significance of the Pharyngeal Tonsil.

The text-books define an adenoid growth as a hypertrophy of the pharyngeal tonsil. But what the pharyngeal tonsil is, or why it hypertrophies, are questions to which we find no satisfactory reply. Certain writers define it as a collection of lymphoid tissue appearing in the roof

of the naso-pharynx at birth or shortly after. This, however, is incorrect, for it is already a well-defined structure in the human foetus at $4\frac{1}{2}$ months. That is to say, as soon as the child is viable the pharyngeal tonsil is available. At this early stage it differs in size, but not in structure, from the pharyngeal tonsil of infancy or adolescence. All vertebrates are provided with this organ, but in man alone does it appear to be subject to disease and hypertrophy. The reason of this will be made evident in due course.

The development of the pharyngeal tonsil is briefly as follows : In the human embryo, while the stomodoeum or primitive mouth is still separated from the foregut by the oral plate, which breaks down in the third week of foetal life, a small invagination or depression appears in the roof of the mouth, just anterior to the plate. This depression is known as Rathke's pouch (Fig. 1), which, as it deepens, passes up between the pre-sphenoidal and basi-sphenoidal centres, and at length becomes flask-shaped (Fig. 2.) Later still the body of the flask separates from its neck (Fig. 3).

The body of the flask then coalesces with a down-growth from the third ventricle of the brain, to form the pituitary body. The neck of the flask remains as the cranio-pharyngeal canal, which, passing between the pre-sphenoid and basi-sphenoid, provides a channel of communication between the cranial cavity and the pharynx. This canal normally begins to close a month before birth, but may permanently remain patent, and even be large enough to permit a cerebral hernia to project in the naso-pharynx. Such a meningocele has been mistaken for an adenoid growth, and curetted with fatal results. A case was reported quite recently.

The next stage is the growth of the tonsil around the pharyngeal orifice of this canal. The hypoblastic endothelium is invaginated in the longitudinal folds which are so evident in a removed adenoid growth ; and from the mesoblast within the folds are developed the lymph follicles of the completed organ.

At the cranial orifice of the cranio-facial canal there is now the pituitary body ; at its pharyngeal orifice the pharyngeal tonsil. The importance of this will appear later, but it must be mentioned now because further developmental processes in the human embryo change completely the relationship between pituitary body, cranio-pharyngeal canal and pharyngeal tonsil.

As we have seen, the pharyngeal tonsil develops at a point midway between the pre-sphenoid and basi-sphenoid. In the eighth month of foetal life the pre-sphenoid begins to unite with the basi-sphenoid, gradually obliterating the cranio-pharyngeal canal, which, however, is still present at birth (Fig. 4). Now the human foetus has six turbinate bodies. Three of them remain as the inferior, middle and superior turbinates of adult life, and the fourth and fifth disappear entirely. The sixth, however, does not disappear, but at the third month after birth suffers an ingrowth of mucous membrane, which hollows it out and expands it into the sphenoidal sinus. This infantile sphenoidal air cell in its turn gradually invades the pre-sphenoid and basi-sphenoid, expanding them into the large sphenoidal sinus of the adult. The sixth turbinate bone, from which the sinus originates, remains as its anterior wall.

The growing sphenoidal sinus displaces the pharyngeal tonsil in a downward direction, so that it comes to be, not beneath the point at which it was developed, but much more posteriorly, beneath the basi-occipital bone. When development is complete the primitive relationship of pituitary body, cranio-pharyngeal canal, and pharyngeal tonsil is entirely altered. The canal has disappeared and in its place, directly beneath the pituitary body, is the sphenoidal sinus ; while the pharyngeal tonsil, pushed out of its original position, has no longer any apparent connection with the structures from which it originated. All that remains to it in this connection is the tiny central bursa which was originally the pharyngeal opening of Rathke's pouch.

Such is the origin and development of the pharyngeal tonsil, briefly considered. But this consideration, interesting as it may be, throws no light upon the more important questions of significance and physiology. We have still to discover its functions, if it has any ; and its significance in any case. With regard to functions, we are in a position to state a positive case. During the past fifty years the operation of adenoidectomy has been so extensively performed that we may quite certainly assume the pharyngeal tonsil to have been extirpated more frequently than any other organ. The accumulated experience of hundreds of surgeons in hundreds of thousands of cases warrants the assumption that the pharyngeal tonsil in man serves no useful purpose. Were it essential to the processes of life, or even if not essential in any degree useful, its loss would result in some physiological disability. But

we know that the removal of the pharyngeal tonsil is productive of nothing but good ; and its presence, when it is large enough to make itself felt, of nothing but evil. There is no recorded case of any ill resulting from its loss.

Now when the removal of an organ of definite anatomical structure is followed by no ill effects we may reasonably regard that organ as performing no essential function. The human appendix is a familiar example of a structure that has survived its utility. In herbivorous animals it performs a useful function, but in man, who is no longer herbivorous, it is but an incumbrance and a danger. Organs that were useful in the evolutionary past, but are no longer so, we call vestigeal. The pharyngeal tonsil is probably such a survival from the past, and if we so regard it, we have to consider of what it is a vestige, and what purpose it once served If it is vestigial, it is certainly more primitive than the appendix, and belongs to a remoter past, for the pharynx to which it belongs appears in evolution long before a differentiated intestinal tract. As every vertebrate has a pharyngeal tonsil, we may hope to find in the most primitive of all vertebrates this organ, or some homologue of it, in functional activity. The only surviving animals which biologists agree to resemble the ancestral form from which all vertebrates descend are the Tunicates, and it is to them that we must turn for the solution of the problem of the pharyngeal tonsil.

The most familiar, as well as the most representative member of this class is the common sea-squirt, the Ascidia Mentula. In the larval stage the sea-squirt is a free-swimming, tadpole-like creature. It has a nervous system, a notochord, an eye provided with retina, lens, and cornea, and an organ of hearing which consists of an otolith attached by auditory hairs to a hollow crista acoustica. It is in fact a primitive vertebrate. But after a very short existence as a swimming animal it attaches itself to some foreign object and undergoes a curious series of changes which convert it into the adult sea-squirt. The eye and ear disappear completely, and the nervous system atrophies until it is reduced to a single ganglion in the dorsal wall of the pharynx. The adult animal degenerates into a more primitive type than its own embryo. It represents the very earliest form to which the name vertebrate can be in any way applied, and is regarded as a survival representing the ancestral form.

An examination of the pharynx of the adult Ascidian (Fig. 5) supplies some remarkable information which enables us to speculate upon the significance of the pharyngeal tonsil in man. Above the dorsal median line of the pharynx there is the nerve ganglion, and beneath this is a hollow gland, the subneural gland, formed by an invagination of the pharyngeal endothelium (Rathke's pouch, in fact). This gland is a homologue of the anterior lobe of the pituitary in man, just as the nerve ganglion above it represents the posterior lobe of the human pituitary body, which is also a nerve structure.

The subneural gland communicates with the pharynx by a cranio-pharyngeal canal, similar in every respect to the cranio-pharyngeal canal in the human subject.

At the pharyngeal opening of this canal there is a complicated projection, known as the dorsal tubercle. The function of this tubercle is to act as a test-organ for the quality of the sea-water, which is at once the nutritive and the respiratory fluid of the animal.

An organ to test the purity of the respiratory current occurs in certain invertebrates, molluscs for example, and this Ray Lankester named the osphradium, I suppose from the Greek word for smell (osphrasis), but it differs in various points from the dorsal tubercle of this primitive vertebrate.

Now, if the pharyngeal tonsil in man is the remains of the test organ of primitive vertebrates, we should expect it to act as a test organ when, and if, it becomes necessary for it to function. And so it does, for it only hypertrophies when the respiratory fluids of the body, namely, the air-current and the blood-current, are contaminated for long periods of time. Moreover, it has been quite recently demonstrated that in the domestic cat adenoid hypertrophies can be made to appear by feeding the animal on fats and carbohydrates in place of its natural carnivorous diet.

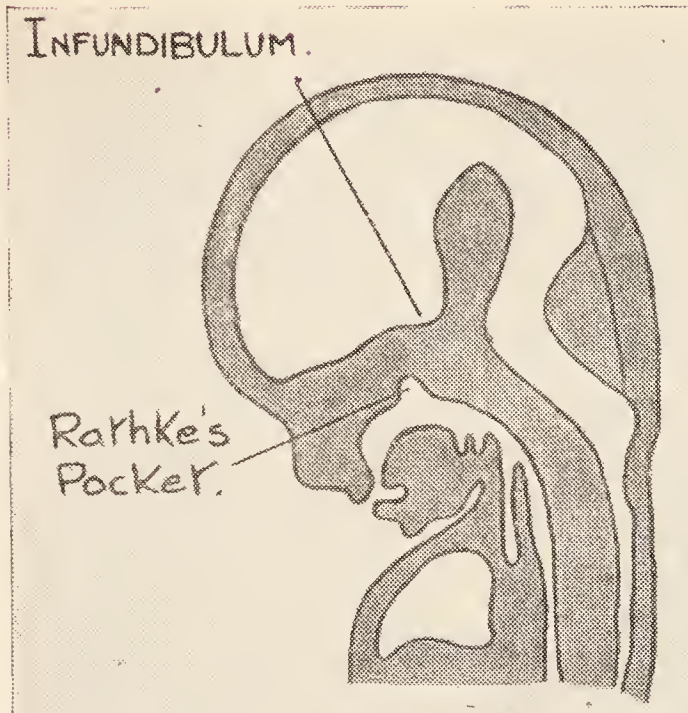


FIG. 1.

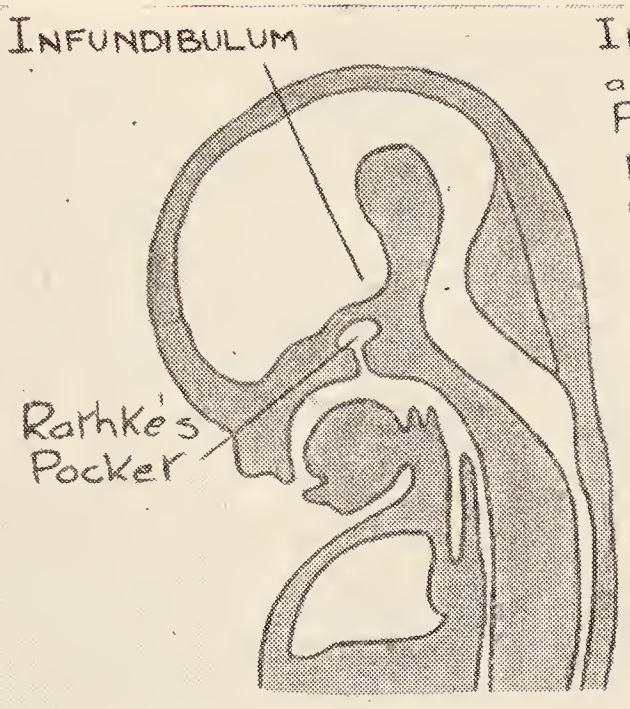


FIG. 2.

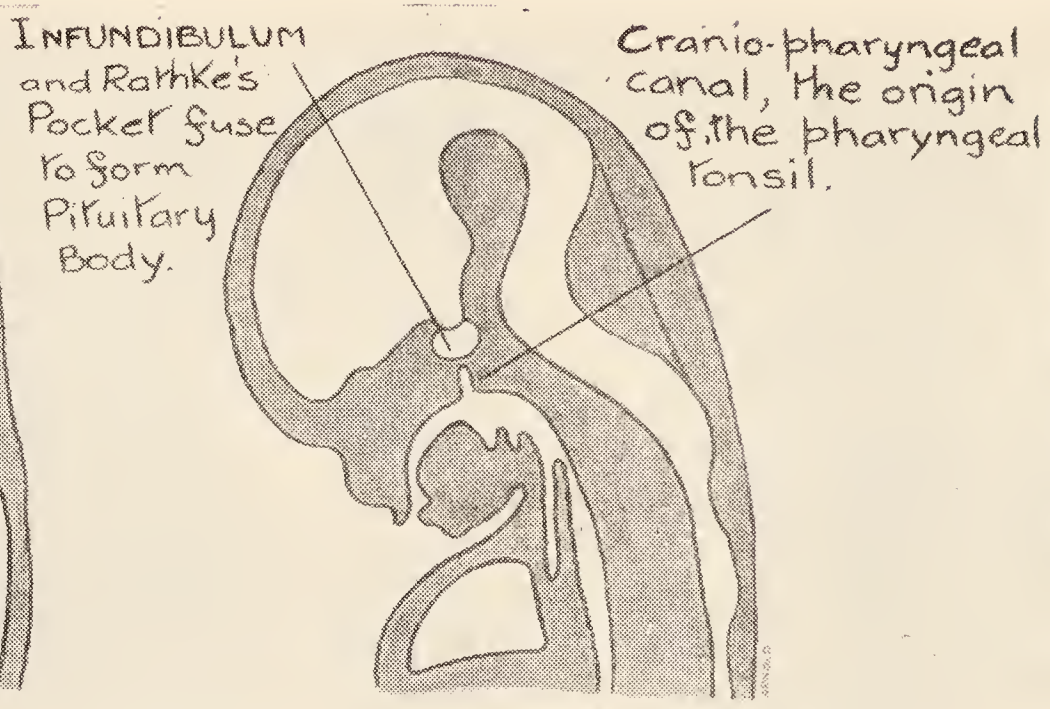
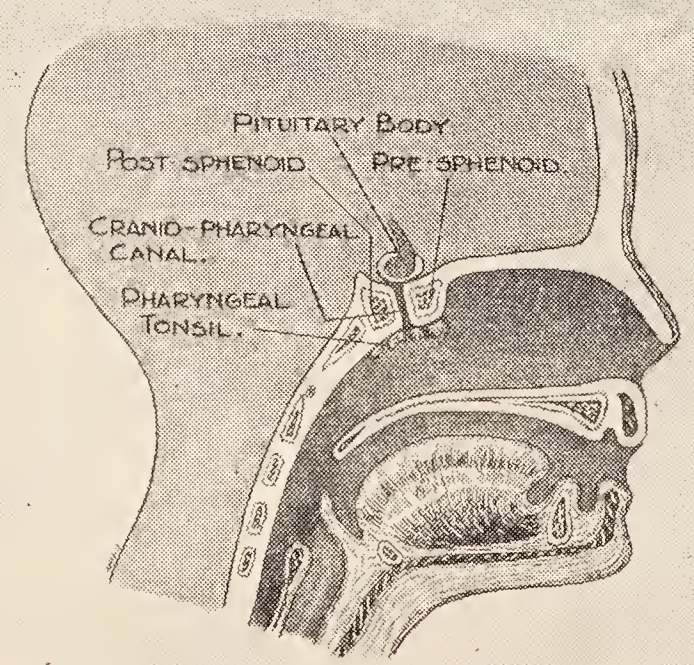


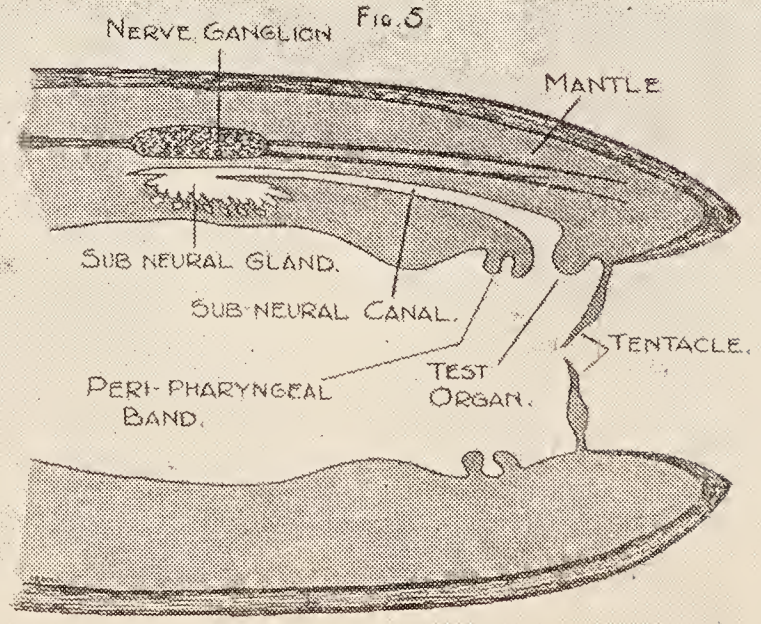
FIG. 3.

FIG. 4.



CRANIO-PHARYNGEAL CANAL BETWEEN PRE- AND POST-SPHENOID.
AT ONE END IS THE PITUITARY BODY, AT THE OTHER IS THE PHARYNGEAL TONSIL.

FIG. 5.



SECTION THROUGH ANTERIOR DORSAL PART OF ASCIDIA MENTULA.

The preliminaries in connection with the Operations are carried out at the Inspection Clinic and a "consent" card is signed by a parent or guardian. Written instructions are sent to the parent for the preparation and attendance of the child. Also detailed instructions for carrying out breathlng exercises and after-treatment up to the time of re-inspection nine days after operation.

This part of the procedure is considered to be of the greatest importance and laxity is easily detected at subsequent inspections. I attribute the excellence of our results to the close adherence to our instructions for breathing which have been insisted on. Every case is inspected regularly until satisfactory progress is being made.

The following is the usual procedure :—

1. No operation is performed in the presence of oral sepsis. Such cases are referred to the School Dentist for appropriate preliminary treatment.

2. Every child before operation undergoes a thorough physical examination, and on the day of operation is examined independently by two members of the School Medical Servlce. In this way it is possible to detect and reject cases of suspected status lymphaticus.

3. Elaborate precautions are taken to eliminate the dangerous emotional element of fear. Anæsthesia is induced in a room adjoining the operation room. After operation the child is not carried back to the ward where other small patients are waiting their turn, but to a separate ward devoted to this purpose. Thus no child sees another recovering from the immediate effects of operation until he himself has also undergone the ordeal. In this manner the children are spared the terror of seeing an unconscious and possible blood-bedrabbled companion returned to their midst. They regain consciousness more or less altogether, and forget their fear in boasting to one another of their sufferings and fortitude.

4. Operations are performed in the morning. The same evening the patients are examined by the Surgeon, and such as are fit to be discharged are returned to their homes by motor ambulance.

With regard to the method of operation, adenoids are removed by the La force adenmatome, an instrument whose value it is impossible to over-estimate. Diseased or hypertrophied tonsils are enucleated complete in their capsule by the Sluder method. I have used this method in all cases since 1911, and have yet to meet one to which it is inapplicable.

The following table gives details of the work carried out during the calendar year 1924.

Adenoids.	Tonsils.	Adenoids and Tonsils.	Polypi.	Total	
				Boys.	Girls.
				76	61
55	4	75	3	137	

The results have been far superior to what is usually met with after out-patient treatment at hospitals, etc. Being in touch with most of these children in connection with the Aural Clinic, I am in a position to assess their permanent cure.

I am,

Yours obediently,

F. PEARCE STURM, Ch.M.,
Surgeon.

B.—Report of Anæsthetist.

To the School Medical Officer.

Sir,

During this year considerable use has been made of Ethyl Chloride as an Anæsthetic.

In some of the less severe cases of Adenoids only, it has in itself been sufficient for the operation, and has been followed by almost immediate awakening.

In other cases, particularly with nervous children, it has been employed with the object of putting them rapidly under, thereby shortening any stage of fear; fear being one of the chief dangers of anæsthetic. In these cases the Anæsthetic has been completed and maintained by ether.

It must be said, however, that there is remarkably little fear amongst the children, by reason of the excellent arrangements made for them. Their reception in different rooms before and after the operation, the general care taken of them, and no doubt the instruction they receive from other children and from parents who have satisfied themselves as to the conditions, all appear to induce calmness and confidence in the patients. A word of appreciation of the kindness of the nurses may be added.

By reason of this confidence it is possible in most instances to depend entirely on a mixture of Chloroform 2 parts and Ether 3 parts, which continues the most satisfactory anæsthetic in this Clinic ; giving ample time for the rapid procedure of the operator, and being followed by quick recovery of consciousness after the operation.

As in previous years, the children are examined before the anæsthetic and again before being sent home. Arrangements are still in existence to keep them in the House overnight if necessary, but in the past year this has not been required.

I am,

Yours faithfully,

JOSEPH JONES, M.D.,

Anæsthetist.

Annual Report of the Dental Clinic.

Staff :—Mr. E. ENTWISLE, L.D.S.

To the School Medical Officer.

Sir,

I beg to submit my report for the work done in connection with the Dental Clinic for the year ending 31st December, 1924.

I have given four sessions per week to inspection and treatment. The routine inspections are carried out at the Schools, and I have examined the teeth of :—

(a) Groups aged 5 to 9 years.

(b) All others previously treated at the Clinic.

After inspection all parents of those children requiring treatment are notified of the fact and are asked to see their own Dentist. The children are later sent for to see if the work has been done, if not, the necessity for it is pointed out to the parent, and their consent or otherwise is obtained.

I believe this routine is on the lines laid down by the Board of Education, but I may say that I do not altogether agree with it, *i.e.* asking the parents to have the work done, before the necessity for it has been impressed on them. I am under the impression that the parents on receiving the notice either make up their minds to take the child to their dentist, but do not ; or take the child and have a tooth, that they see is decayed or that is aching, extracted ; they do not realise that the child's mouth has not been put in order and that several fillings, extractions, etc. may be necessary before that state is achieved.

However, I am glad to say that parents are recognising more clearly the importance of oral hygiene, but there is plenty of room for improvement in this direction.

The charge for treatment has made little difference in the attendances in fact in some cases it has made the work more appreciated.

Under Section D. Table IV., I append a summary of the work done during the year.

My thanks are due to my colleagues in the School Medical Service for their ready assistance in my work and to the teachers for the facilities they grant me at the inspections.

I am,

Yours obediently,

EDWARD ENTWISLE, L.D.S.,
Dental Surgeon.

TABLE I.—RETURN OF MEDICAL INSPECTIONS.

A.—Routine Medical Inspections.

Number of Code Group Inspections—	
Entrants	789
Intermediates	657
Leavers	882
Total	2328
Number of other Routine Inspections	

B.—Other Inspections.

Number of Special Inspections	962
Number of Re-inspections	1089
Total	2051

TABLE II.

A.—Return of Defects found by Medical Inspection in the Year ended 31st December.

Defect or Disease.		Routine Inspections. No. of Defects. Requiring treatment.	Routine Inspections. No. of Defects. Requiring to be kept under observation, but *not* requiring treatment.	Special Inspections. No. of Defects. Requiring treatment.	Special Inspections. No. of Defects. Requiring to be kept under observation, but *not* requiring treatment.
1		2	3	4	5
	Malnutrition	8		8	
	Uncleanliness ... . (See Table IV., Group V.)				
Skin	Ringworm :				
	Scalp			16	
	Body			9	
	Scabies				
	Impetigo	36		20	
	Other Diseases (non-Tuberculous)..			1	
Eye	Blepharitis	37		5	
	Conjunctivitis	2			
	Keratitis	4		13	
	Corneal Opacities				
	Defective Vision (excluding Squint)	393		20	2
	Squint...	15	3	1	
	Other Conditions			4	
Ear	Defective Hearing	11		2	
	Otitis Media	4			
	Other Ear Diseases	4		1	

1		2	3	4	5
Nose and Throat	Enlarged Tonsils only	117	166	22	
	Adenoids only	30		15	
	Enlarged Tonsils and Adenoids ...	19	2	14	
	Other Conditions		13	2	
Enlarged Cervical Glands (Non-Tuberculous) ..			7	1	
Defective Speech		7			
Teeth—Dental Diseases ... ... (See Table IV., Group IV.)					
Heart and Circulation.	Heart Disease : Organic		17	3	
	Functional				
	Anæmia	156		23	
Lungs	Bronchitis	51		8	3
	Other Non-Tuberculous Diseases ...				
Tuberculosis	Pulmonary : Definite	2			
	Suspected	8		25	
	Non-pulmonary : Glands		4	4	
	Spine				
	Hip				
	Other Bones and Joints ...				
	Skin				
	Other Forms		2		
Nervous System	Epilepsy				
	Chorea				
	Other Conditions				
Deformities	Rickets		4		
	Spinal Curvature				
	Other Forms		3		
Other Defects and Diseases			22	296	4

B.—Number of *individual children* found at *Routine* Medical Inspection to Require Treatment (excluding uncleanliness and dental diseases).

Group. 1	Number of Children. Inspected. 2	Number of Children. Found to require treatment. 3	Percentage of Children found to require treatment. 4
Code Groups :			
Entrants	789	193	24%
Intermediates ...	657	189	28%
Leavers	882	211	23%
Total (Code Groups) ...	2328	593	25 ·47
Other Routine Inspections ...			

TABLE III.—RETURN OF ALL EXCEPTIONAL CHILDREN IN THE AREA.

—	—	—	Boys.	Girls.	Total.
Blind (including partially blind).	(*i*) Suitable for training in a School or Class for the totally blind.	Attending Certified Schools or Classes for the Blind ...	1		1
		Attending Public Elementary Schools			
		At other Institutions			
		At no School or Institution ...		1	1
	(*ii*) Suitable for training in a School or Class for the partially blind.	Attending Certified Schools or Classes for the Blind ...		1	1
		Attending Public Elementary Schools			
		At other Institutions			
		At no School or Institution ...			
Deaf (including deaf and dumb and partially deaf)	(*i*) Suitable for training in a School or Class for the totally deaf or deaf and dumb.	Attending Certified Schools or Classes for the Deaf ...	1	1	2
		Attending Public Elementary Schools			
		At other Institutions			
		At no School or Institution ...			
	(*ii*) Suitable for training in a School or Class for the partially deaf.	Attending Certified Schools or Classes for the Deaf ...	2	1	3
		Attending Public Elementary Schools			
		At other Institutions			
		At no School or Institution ...			
Mentally Defective.	Feeble-minded (cases not notifiable to the Local Control Authority).	Attending Certified Schools for Mentally Defective Children	2	1	3
		Attending Public Elementary Schools	3	4	7
		At other Institutions			
		At no School or Institution ...	1		1
	Notified to the Local Control Authority *during the year.*	Feeble-minded...			
		Imbeciles	1	1	2
		Idiots			
Epileptics.	Suffering from severe epilepsy.	Attending Certified Special Schools for Epileptics ...		1	1
		In Institutions other than Certified Special Schools...			
		Attending Public Elementary Schools			
		At no School or Institution ...			
	Suffering from epilepsy which is not severe.	Attending Public Elementary Schools	1		1
		At no School or Institution ...			

—	—	—	Boys.	Girls.	Total.
Physically Defective	Infectious Pulmonary and Glandular Tuberculosis.	At Sanatoria or Sanatorium Schools approved by the Ministry of Health or the Board			
		At other Institutions	3	1	4
		At no School or Institution ..			
	Non-infectious but Active Pulmonary and Glandular Tuberculosis.	At Sanatoria or Sanatorium Schools approved by the Ministry of Health or the Board...			
		At Certified Residential Open Air Schools		1	1
		At Certified Day Open Air Schools			
		At Public Elementary Schools	4	2	6
		At other Institutions			
		At no School or Institution ...			
	Delicate Children (*e.g.*, pre-or latent Tuberculosis, Malnutrition, Debility, Anæmia, etc.)	At Certified Residential Open Air Schools		5	5
		At Certified Day Open Air Schools			
		At Public Elementary Schools	23	24	47
		At other Institutions			
		At no School or Institution ...			
	Active Non-Pulmonary Tuberculosis.	At Sanatoria or Hospital Schools approved by the Ministry of Health or the Board...			
		At Public Elementary Schools			
		At other Institutions			
		At no School or Institution ...	6	6	12
	Crippled Children (other than those with Active Tuberculosis Disease), *e.g.*, Children suffering from Paralysis, &c., and including those with Severe Heart Disease.	At Certified Hospital Schools			
		At Certified Residential Cripple Schools			
		At Certified Day Cripple Schools			
		At Public Elementary Schools	31	24	55
		At other Institutions		1	1
		At no School or Institution ...		2	2

TABLE IV.—RETURN OF DEFECTS TREATED DURING THE YEAR ENDED 31ST DECEMBER.

Treatment Table.

Group I.—Minor Ailments (excluding Uncleanliness, for which see Group V).

Disease or Defect. 1	Number of Defects treated, or under treatment during the year. Under the Authority's Scheme. 2	Otherwise. 3	Total. 4
Skin—			
Ringworm-Scalp	45	15	60
Ringworm-Body	24	8	32
Scabies	2	—	2
Impetigo	137	23	160
Other Skin Disease...	6	3	9
Minor Eye Defects— (External and other, but excluding cases falling in Group II.)	63	43	106
Minor Ear Defects—	28	15	43
Miscellaneous— (*e.g.* minor injuries, bruises, sores, chilblains, etc.)	113	108	221
Total	418	215	633

Group II.—Defective Vision and Squint (excluding Minor Eye Defects treated as Minor Ailments—Group I).

Defect or Disease. 1	Number of defects dealt with. Under the Authority's Scheme. 2	Submitted to refraction by private practitioner or at hospital, apart from the Authority's Scheme. 3	Otherwise. 4	Total. 5
Errors of Refraction (including Squint) (Operations for squint should be recorded separately in the body of the Report	137	6		143
Other Defect or Disease of the Eyes (excluding those recorded in Group I.)				
Total	137	6		143

Total number of children for whom spectacles were prescribed—

(*a*) Under the Authority's Scheme 129

(*b*) Otherwise 6

Total number of children who obtained or received spectacles—

(*a*) Under the Authority's Scheme 129

(*b*) Otherwise 6

Group III.—Treatment of Defects of Nose and Throat.

Number of Defects.				
Received Operative Treatment.			Received other forms of Treatment.	Total number Treated.
Under the Authority's Scheme, in Clinic or Hospital.	By Private Practitioner or Hospital, apart from the Authority's Scheme.	Total.		
1	2	3	4	5
137	3	140	31	171

Group IV.—Dental Defects.

(1) Number of Children who were :—

(*a*) Inspected by the Dentist :

Aged :

Routine Age Groups	5... 611 6... 572 7... 597 8... 695 9... 178 10.. 69 11... 64 12... 34 13... 17 14 .. —	Total...	2837
Specials			29
		Grand Total ...	2866

(*b*) Found to require treatment 1763

(*c*) Actually treated 528

(*d*) Re-treated during the year as the result of periodical examination 80

(2) Half-days devoted to { Inspection... 12 / Treatment... 144 } Total 156

(3) Attendances made by children for treatment... 1599

(4) Fillings { Permanent teeth... 148 / Temporary teeth... 144 } Total 292

(5) Extractions { Permanent teeth... 49 / Temporary teeth... 878 } Total 927

(6) Administration of general anaesthetics for extractions— Nil.

(7) Other operations { Permanent teeth.. 48 / Temporary teeth... 140 } Total 188

Group V.—Uncleanliness and Verminous Conditions.

(i) Average number of visits per school made during the year by the School Nurses...9.66

(ii) Total number of examinations of children in the Schools by School Nurses...15,197

(iii) Number of individual children found unclean...1233

(iv) Number of children cleansed under arrangements made by the Local Education Authority...—

(v) Number of cases in which legal proceedings were taken :

(*a*) Under the Education Act, 1921...—

(*b*) Under School Attendance Byelaws... —